December, 1930

Vol. XLIII, No. 6
50 Cents, $4 a Year

# The American City

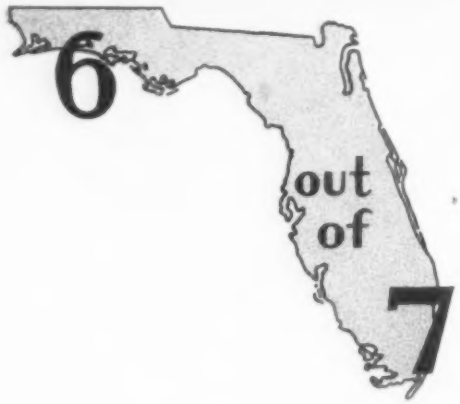
JOBS FOR THE UNEMPLOYED

Street Cleaning
Snow Removal
aying Water-Mains
Road Grading
Garbage Collection
Traffic Regulation
Fire Prevention
anitary Inspection
Park Improvements
Tree Planting
etc., etc.

NEW PROJECTS FOR 1931

Water-Supply
Sewage Disposal
Street Lighting
Paving
Road Construction
Street Widening
Airports
Public Buildings
Comfort Stations
Swimming Pools
etc., etc.

The Kind of Municipal Christmas Cheer the Present Emergency Demands




# Florida's Foremost Cities Lack One of Being Unanimous

In Florida, "where Summer spends the Winter," we find the same popularity of TEXACO Asphalt paving among *leading* cities, as in other sections of the United States. Of Florida's seven cities with a population above 25,000, six have pavements of TEXACO Asphalt. Three of them, Tampa, St. Petersburg and Lakeland, to date have constructed more than 500,000 square yards of pavement using TEXACO.

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ASPHALT SALES DEPT.
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Cleveland
Kansas City
Houston
Dallas
Buffalo

During December we hope you will remember to mention THE AMERICAN CITY.

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**The American City**

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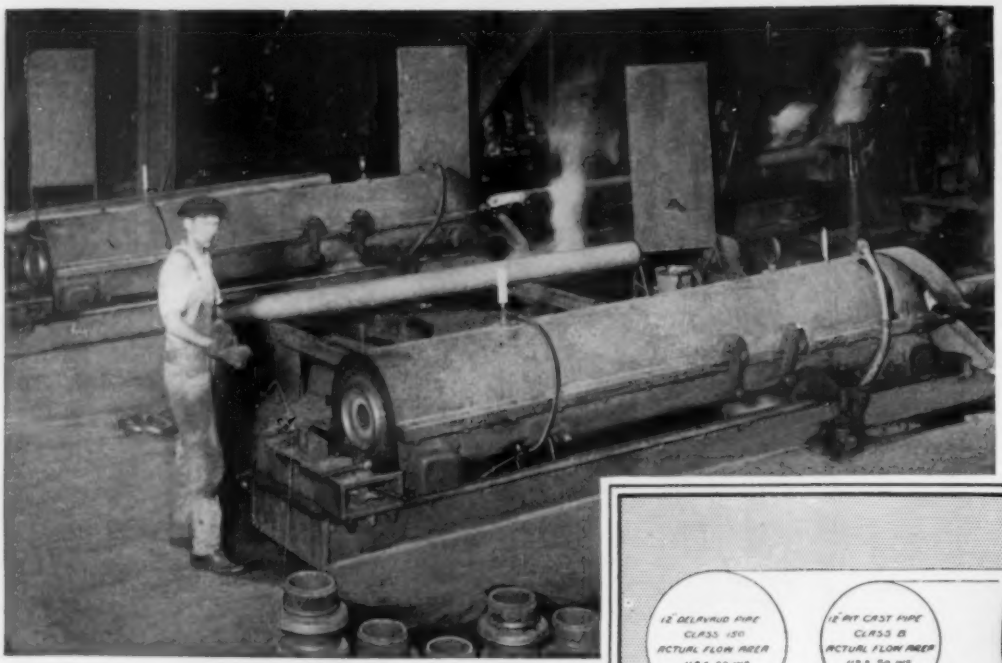
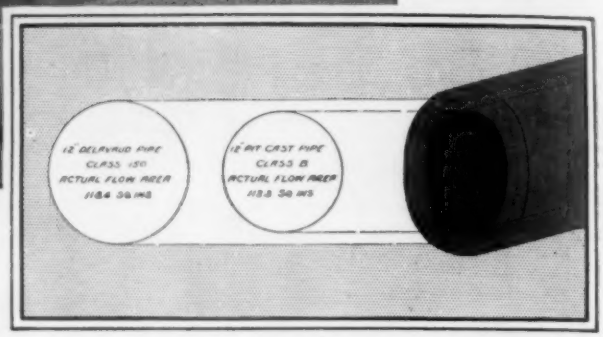
In THE MUNICIPAL INDEX (an 850-page annual volume) readers will find much material, including articles, lists and bibliographies on a wide variety of municipal and civic subjects, not published in the monthly issues of THE AMERICAN CITY


***For Index to Advertisements see page preceding back cover.***



*Above:* The deLavaud machine in operation.




*Below:* Graphic illustration showing the greater carrying capacity of de Lavaud pipe.

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# UNEMPLOYMENT RELIEF

## and Items for Mayors and City Managers

### *For a Billion Dollars or More of Federal "Employment" or "Prosperity" Bonds*

AT the 1928 Conference of Governors, Ralph O. Brewster, then Governor of Maine, submitted as emanating from President-elect Hoover, a proposal for long-time planning of Federal public works on a large scale, with a three-billion-dollar fund to be expended at the President's discretion in times of threatened unemployment. If action had been taken by Congress along the lines proposed, our present unemployment emergency throughout the United States, would be much less acute.

Believing that the time has now come to urge consideration of a proposal similar to that which failed of action in 1928, coupled with prompt authorization by Congress of a billion dollars or more public works expenditures by bond issue or otherwise, an Emergency Committee for Federal Public Works has just been organized. Its members are: James H. Post, President, National Sugar Refining Company; Victor A. Lersner, President, Bowery Savings Bank, New York; Darwin J. Meserole, President, National Unemployment League; Paul U. Kellogg, Editor, *The Survey;* and Harold S. Buttenheim, Editor, THE AMERICAN CITY, who has been asked to serve as the Committee's Chairman.

The Committee's appeal to the President and Congress is printed on page 85 of this issue. It is realized, of course, that no action which the Federal Government can now take will solve the unemployment problem of the present winter. On the other hand, the Committee sees no reason to believe that the need for jobs or the need for public works of the kinds mentioned in its statement will have disappeared with the coming of spring.

The question has been raised as to how a billion dollars of Federal funds could be expended with the maximum of public benefit and the minimum of waste. One suggestion which might be helpful is that the President ask the 48 governors to appoint emergency committees representative of their state highway departments and other officials and public-spirited citizens; that these committees report on needed public works which would be proper Federal projects, for which plans already exist or can be drawn with little delay, but for which appropriations are not now available; and that, with full consideration also of projects recommended by the various Federal departments, the awarding of contracts be authorized under conditions which will provide greatly increased employment during 1931, and which will reduce the need for similar Federal expenditures when nation-wide prosperity returns. Some waste, of course, there is sure to be. THE AMERICAN CITY believes, however, that the cost of such a program would be far less than the losses resulting from the continued mental and physical anguish of our millions of unemployed, or the demoralizing effect of the acceptance of doles.

In urging a substantial increase in Federal expenditures for public works, THE AMERICAN CITY has no thought that our state, county and municipal governments should lessen their efforts to solve problems to the maximum of their ability. On the contrary, as our readers are well aware, this magazine has repeatedly urged, for more than a year past, increased appropriations for the speeding up of local public works. The front cover of the present issue is testimony to our continued desire to do what we can in our own special field of endeavor. But, as the Emergency Committee for Federal Public Works suggests in its appeal above mentioned, the Federal Government has resources and facilities far exceeding those of any of its political subdivisions. A great opportunity faces Congress and the President.

### *San Francisco's Mayor Becomes California's Governor*

JAMES ROLPH, JR., Mayor of San Francisco for twenty years, was elevated to the governorship of California at the last election, easily winning as the Republican candidate despite the prevalence of Democratic victories elsewhere. Well known in the political life of San Francisco since the fire of 1906, when he was energetic and efficient in relief work, his reputation and popularity have been spreading ever since, his activity in connection with the Panama-Pacific Exposition in 1915 being one of the earlier causes. He has also been prominent in the business life of the city.

Mayor Rolph has in general furthered the municipal ownership projects of San Francisco—street railways, water, and electric generation—having worked especially hard to institute the municipal railway which competes with the privately owned lines. On both of these systems the fare has remained five cents despite increased rates in almost all other cities. The election also, however, produced the possible anomaly that the people of San Francisco voted a 25-year franchise to the private system, the existing franchises of which had largely expired; competition is evidently desired there.

*Photograph by Underwood & Underwood*

GOVERNOR-ELECT JAMES ROLPH, JR., OF SAN FRANCISCO

### *Recent City Manager Appointments*

W. C. BALLARD became City Manager of Bedford, Va., on October 1, succeeding R. W. Catlin, who resigned to become City Manager of Farmville, Va.

R. W. Catlin, who had been City Manager of Bedford, Va., since May, 1924, was appointed City Manager of Farmville, Va., October 1. He succeeds R. B. Cralle, deceased.

P. J. Hernon recently was appointed the first City Manager of Dun Loaghaire, Ireland, a newly created city near Dublin. Mr. Hernon had served for the previous six years as a commissioner of the city of Dublin.

P. E. Jarman, City Engineer of Westmount, Que., for the past thirteen years, was appointed to the city managership of Westmount on October 13. He succeeds George W. Thompson, who died last April.

Paul A. Volcker, City Manager of Cape May, N. J., since May, 1925, became the first City Manager of Teaneck, N. J., on November 10. Mr. Volcker is a graduate of Rensselaer Polytechnic Institute, and served for several years with the New York State Highway Commission; he was City Engineer of Lebanon, Pa., for six years; and served as Secretary of the Lebanon Chamber of Commerce for three years prior to his appointment as City Manager of Cape May.

CLARENCE E. RIDLEY,
Executive Secretary, International City Managers' Association.

**Suggestions in This Issue for Unemployment Relief**

Because of the nation-wide extent of the unemployment emergency, numerous suggestions of palliative and remedial measures are offered in the present issue of THE AMERICAN CITY. Readers interested in the problem—and who is not?—will find articles, pictures, or items on the front cover and on pages 5, 15, 23, 85, 95, 149, 153, 158, and 159.

# A City is Judged by its Water Supply

The New York Water Service Corp., recently installed this 1,250,000-gallon Horton radial cone-bottom tank at Brooklyn, N. Y.

THERE are few phases of municipal activity more important to citizens than the water service . . . and thanks to engineering progress, good water service was never more economical.

The illustration shows a 1,250,000-gallon Horton radial cone-bottom elevated tank. This design gives minimum difference in tank pressures to pump against, consequently it saves money in pumping costs. Other advantages of shallow depth Horton tanks are:

—good pressures in all parts of the system. The tank is filled when little water is being used and feeds back into the system during peak demand. And the pressures are EFFECTIVE because of the shallow depth.

—postponement of torn-up streets for main enlargements and the need for larger pumps.

—repairs to distribution system and pumping equipment permitted without jeopardizing fire protection.

Municipal officers and engineers can do no greater service for a city than by insuring an efficient, economical water system. We are glad to cooperate with you and furnish estimates on tanks.

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*Chicago*.....2127 *Old Colony Building*

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|---|---|---|
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| DETROIT | PHILADELPHIA | DALLAS |
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| SEATTLE | CLEVELAND | TULSA |

# HORTON TANKS

# Pure Water—Man's Greatest Need

## Items on Water Supply and Purification

### *Economical Operation of Pumping-Plant*

A COMPARISON of costs for a period of six years from 1924 to 1929 indicates efficiency and economy of operation of the water-works of the city of Omaha, Nebr.

| | 1924 | 1929 |
|---|---|---|
| Pumpage, million gallons. | 9,655 | 10,030 |
| Gallons pumped per pound of coal ..... | 170 | 192 |
| Gallons pumped per dollar of coal ..... | 73,156 | 96,333 |
| Coal, consumed, tons..... | 28,373 | 26,096 |
| Cost of coal..... | $131,978 | $104,117 |
| Total pumpage expense... | 353,011 | 295,738 |
| Cost of coagulants, chlorine, etc. ..... | 21,696 | 12,536 |

While there was an increase in pumpage of 375,000,000 gallons, the total pumpage cost was decreased $57,273 and the cost of coagulation and filtration was decreased $9,160. A greater quantity of water was pumped both per pound of coal and per dollar's worth of coal.

THEODORE A. LEISEN,
General Manager, Metropolitan Utilities District.

### *The Effect of the Drought on Ohio Water-Supplies*

AT least seven Ohio cities and villages dependent on impounded water-supplies are facing the danger of complete exhaustion of the water as a result of the excessive drought of the last few months. According to the State Department of Health, Barnesville, Blanchester, Caldwell, New Concord, Oberlin, Wellington and Woodsfield are among those that are estimating in days how long their water-supplies will last.

The village of Caldwell, in Noble County, was forced to resort to a highly polluted stream of water to supplement an emergency supply from wells. The city of Struthers, whose supply became exhausted in the latter part of August, has been able by the construction of 3,000 feet of water line, to purchase water from the neighboring city of Campbell. Cambridge is depending on water pumped from old mine workings since its regular surface supply became exhausted.

The deficiency in rainfall in Ohio this year has been the greatest on record. The average normal rainfall for central Ohio in one year is 36 inches; this year, there is a deficiency of 12 inches, making the rainfall only 24 inches. In northern Ohio the average is 33 inches, while during 1930 it dropped to 24 inches. In southern Ohio the average is 39 to 40 inches, while 1930 showed a drop to 22 or 23 inches.

Only three times in the 87 years of record, some of them unofficial, has the average for the year previously fallen below 30 inches. In 1856 it fell to 29, in 1894 to 28, and in 1895 to 28.

### *Water on the Prohibition List*

ACCORDING to a recent cable dispatch to the New York *Sun*, Budaors, a town near Budapest, has declared "water prohibition" and its inhabitants will be compelled during the next few months to drink nothing but wine and beer.

The Town Council has placed a ban on the drinking of water in order to protect the people against the spread of disease by the town's defective water system. The citizens sent a deputation to the Council to complain about the water, which they said was unfit to drink. The Council investigated and issued an order forbidding the use of city water as a beverage. The lawmakers advised the people to drink wine, which is cheap in Hungary because the Russian Soviet has started a dumping program with the famous Caucasus and Crimean wines.

Reconstruction of the town's water system will take three months, during which water prohibition will prevail.

### *Reading Collects $735,000 for Water During 1929*

THE city of Reading, Pa., has approximately 27,000 water accounts. Of this number, 1,200 are industrial users and include factories, hotels, apartment buildings and other big users. Bills in these cases are rendered monthly. The remainder, 25,800, are domestic users, to whom bills are rendered quarterly. In both cases, 45 days are allowed for payment, after which a 5 per cent penalty is added. Payment is made either in person at the office of the City Treasurer at the City Hall or through the mail by check. The total water charges for 1929 were estimated at $735,000.

The Water Department is authorized by the City Council to shut off the water-supply of any industrial or domestic user, without further notice, for non-payment of water rent or for any other unpaid charge made by the Department, 30 days after the bill is due.

The Department keeps its eye on the industrial conditions and during the past two years, because of the general depression, has been lenient in enforcing the shut-off provision. It has been allowing nine months' time, or the rendering of three consecutive bills, before putting the delinquent on the shut-off list.

Invariably, before the supply is turned off, an employee of the Department is sent to ascertain the reason for non-payment. If a good excuse is offered or a definite promise received that the back bills will be paid, the water is not turned off. If this promise is not fulfilled, the water-supply is stopped. Before water service can be regained, the delinquent must pay a $2 charge for turning the water off and a $2 charge for turning it on, in addition to paying all bills owing. When the inspector of the Department comes to turn off the water, the delinquent may pay him, as the inspectors have been authorized to accept such payments to save the additional expense of turn-off and turn-on charges.

In several cases where people were unable to pay their bills, the Department turned on the water again in order to prevent any unsanitary conditions from arising and interfering with the health of the people on the premises. In such instances, liens are filed against the properties to protect the city. This can be done because, in Reading, only owners of premises, never the tenants, are billed for water service. In two years, however, only 22 liens against properties have been filed.

There are about 1,400, or 5 per cent of the total number of water users, on the delinquent list. A delinquent notice is attached to a user's bill as soon as there are three bills owing, and until he pays the amount due. As industrial conditions improve, the period allowed a delinquent payer before his water is turned off, will be gradually shortened.

GEORGE D. SNYDER,
Revenue Control Clerk, Department of Accounts and Finance.

### *Several Cities Use Dipping Needles*

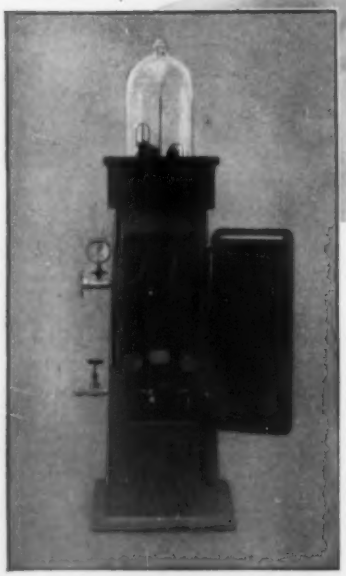
T. W. GOOD, General Superintendent of Water-Works, Cambridge, Mass., reports that all concealed valve boxes are located with the Darley dipping needle.

According to A. H. Tillson, Superintendent, Water Department, Northhampton, Mass., all gates are located by measurements from given points. Magnetic dipping needles are also used in locating gate and service boxes.

In Detroit, Mich., F. H. Stephenson, Engineer of the Water System, reports that pipe lines and valves in the distribution system are carefully located from established property lines, all line valves being in brick or concrete wells with metal covers. In cases of valves buried by snow in winter, by grading or being paved over, a dipping needle is used or a sounding bar is driven into the ground or pavement before digging.

In Colorado Springs, Colo., according to the Superintendent of Water, B. B. McReynolds, the location of all valves is kept in a record book and a plat book of all mains and valves. When streets are graded, the Water Department men follow up the Street Department and raise or lower valves and mains, if needed. A magnetic dipping needle is also used and is found very useful in locating hidden valves.

# CONTROL-



Part of the Navy's "High Hat" Squadron coming into formation, under perfect control, after the take-off.

## *is essential to successful*
## CHLORINATION

"INADEQUATE control over purification methods was responsible for twenty per cent of all water borne diseases during the decade 1920 to 1929" *(so discloses the investigation of Wolman and Gorman as reported to the recent meeting of the American Public Health Association)*...Eighteen thousand cases of typhoid and dysentery could have been prevented with adequate chlorination...W&T Vacuum chlorinators positively control chlorination.

Their dependability is proven by the records of over three thousand machines now in daily service . . . Installed more than eight years ago the first Vacuum chlorinator is still giving excellent service. Maintenance cost has been less than 1% per year.

NO VACUUM CHLORINATOR HAS EVER WORN OUT

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Manufacturers of Chlorine Control Apparatus

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*Branches in principal cities*

*"The only safe water is a sterilized water"*

SA-29

WILLIAM J. LUMBERT
Supt., Public Works
Reading, Mass.
(Appointed 1929)

CHARLES S. HARTER
Supt., Lock Haven Suburban Water Co.
Lock Haven, Pa.
(Appointed 1915)

EDMUND T. CARVER
Supt., Water Works
Weston, Mass.
(Appointed 1929)

GEORGE ELVORD ROBINSON
Supt., Water Works
Canastota, N. Y.
(Appointed 1912)

WILLIAM H. BUCK
Supt., Riverton & Palmyra Water Co.
Palmyra, N. J.
(Appointed 1915)

# Who's Who in Water Supply

***The 36th of a Series of Portraits of Water Works Officials Which Has Appeared Monthly Since January, 1928***

MILTON E. KIEHLE
Supt., Water Dept.
Dansville, N. Y.
(Appointed 1918)

R. G. YAXLEY
Supt., Water Works
Waterford, N. Y.
(Appointed 1921)

WILLIAM M. BARRON
Sec., Water Board
St. Clair, Mich.
(Appointed 1908)

EUGENE A. MAHONEY
Supt., Water Works
Albion, N. Y.
(Appointed 1915)

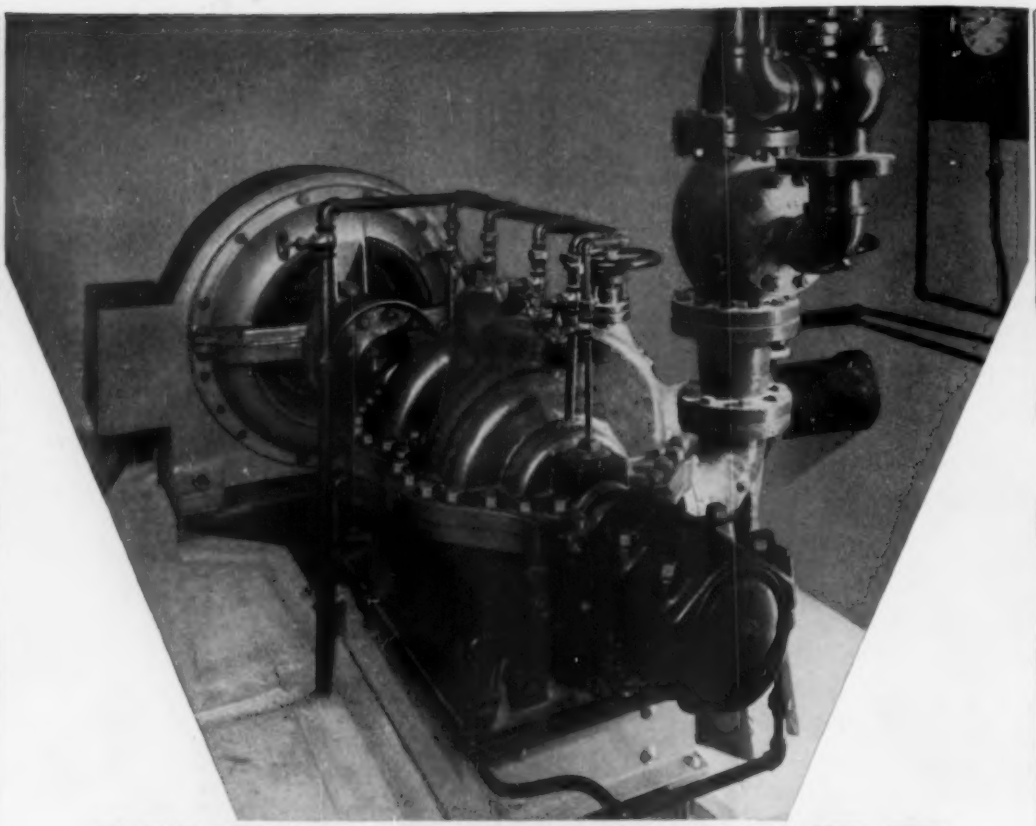
S. L. QUEAR
Supt., Water Plant
Edinburgh, Ind.
(Appointed 1929)

LEROY A. DURKEE
Supt., Water Works
East Longmeadow, Mass.
(Appointed 1921)

WALLACE SEGER
Supt., Water Works
Holden, Mass.
(Appointed 1926)

CHARLES S. CHAMBERLIN
Supt., Water Dept.
Rensselaer, Ind.
(Appointed 1898)

EWING M. MILLER
Water Commissioner
Fairchance, Pa.
(Appointed 1930)



# HIGH PRESSURE MULTI PLEX PUMPS

Byron Jackson Multiplex Centrifugal Pumps for many years have been regarded as standard equipment for water works pumping where high pressures are required. The 300 h.p. unit shown here delivers 1000 g.p.m. against a pumping head of 300 lbs. per sq. in. This installation is interesting in that the pump is required to operate against a 22-inch vacuum on the suction.

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When you write for that catalog, kindly mention THE AMERICAN CITY.

# Sewage Treatment Means Clean Streams

**SEWERAGE and SEWAGE DISPOSAL**

## *Report on Abatement of River Pollution*

REMINGTON, VOSBURY & GOFF, engineers, Camden, N. J., have made a very complete report to the Port Raritan District Commission on "Methods for the Abatement of the Pollution of the Raritan River." This has entailed a comprehensive field study, a study of the population growth of the various cities and towns in the area, the flow of the river and the amount of pollution. In addition, exhaustive investigations have been made covering the possibility of collecting and disposing of the wastes by means of a trunk sewer on one hand and by separate sewage treatment plants on the other.

The Raritan River drains an area of 1,105 square miles and, with the exception of the Delaware, is the largest river in New Jersey. The average yearly discharge at Bound Brook, N. J., for the period of 1922-1928 was 832,000,000 gallons per day and is fairly representative of the normal yearly mean flow. The mean flow for the summer months of the above period was 529,000,000 gallons per day, although for one exceptional part of that time, that is, for 1923-1925, it was as low as 322,000,000 gallons per day.

There is now being discharged each day into the Raritan River about 35,000,000 gallons of sewage and industrial wastes. It has been estimated that the solids in this sewage amount to approximately 50,000 tons per year, of which about one-half is mineral matter and harmless. The remaining half is organic matter and is the cause of the existing pollution. Of the organic solids, from four to five thousand tons settle out each year to form the slimy, bubbling sludge banks which at frequent intervals may be seen along the shores.

The industrial wastes can be considered as equivalent to the sewage discharged from a community of not less than 50,000 people. While this figure is only approximate and undoubtedly low, it indicates these wastes to be an important factor in the pollution of the Raritan River. The wastes contain acids, dyes and other chemicals which are poisonous to fish and prohibit the use of the river for either swimming or bathing.

The 1930 population of the drainage area along the lower Raritan is 190,000, and a careful check upon the past growth in this territory indicates that by 1940 the population will be at least 239,000 and that 15 years later, in 1955, it will equal or exceed 305,000.

The problem involves the restoration of the river to such a condition that it will cease to be a danger and a menace to public health; rendering the waters of the river safe for bathing, boating and out-of-door recreation and in such condition as will allow the return and propagation of fish and other aquatic life; maintaining the river in a clean and sanitary condition and thus aiding in the development of parks and drives along the shores and in making the Raritan Valley desirable for the building of homes and the location of industries; employing some means for the collection of domestic and industrial wastes, to be approved by the United States Public Health Service and the State Department of Health of New Jersey; and accomplishing these results as promptly as possible and with the most economical expenditure of funds.

After an exhaustive study of the advantages of a trunk sewer to discharge into Raritan Bay or into the ocean beyond, or of a system of separate sewage treatment plants some of which would treat the sewage of a single community and others serve two or more communities, the following recommendations were made by the engineers:

1. That the construction of a trunk sewer be postponed until required by an increase in the population to be served.

2. That communities construct individual or jointly operated treatment plants with necessary works for the collection of sewage, to be retained and used as part of the trunk sewerage system when built.

3. That each sewage disposal plant be built to conform, so far as circumstances will permit, to the degree of treatment and general plan described in the report.

4. That industrial wastes be treated at municipal plants when economically possible, or in separate plants to be constructed by the industry concerned.

5. That the several communities and industries cooperate in the construction of disposal plants as soon as possible and thereby abate the existing pollution of the Raritan River within a reasonable period of time.

This report has been published in the form of a 79-page booklet, with many illustrations of the conditions along the river, and maps, with tables and drawings of proposed sewage treatment plants for the various communities.

## *Why Is Sewage Disposal Necessary?*

THERE has been in recent years an awakening of interest in the protection and rehabilitation of our natural streams and lakes, which are not only the source of water-supply for millions of people, but also possess unlimited recreational value and opportunities. Public sentiment is molding movements to preserve the beauty and usefulness of natural streams and lakes against the ever-increasing loads of pollution from domestic sewage and industrial wastes. The public today has, because of good roads and automobiles, unlimited opportunities to enjoy nature through such sports as camping, fishing, swimming and similar pleasures.

Public officials generally endeavor to maintain high standards of municipal progress at the lowest tax rate possible and, unfortunately, have unconsciously become indifferent to the important and vital question of sewage disposal. Generally, this indifference carries no great concern to the public, as the taxpayer is not as cognizant of any tangible and direct benefits from money spent for the purpose of sewage disposal as he is with that from money spent for the construction of a pavement or sidewalk in front of his property. The riparian owner, however, living along water carrying tons of impurities from some community above his homesite, is well aware of such indifference; and the once beautiful stream or lake has become an open sewer with obnoxious odors and unsightly sludge banks.

Under the common law, the court has repeatedly upheld the rights of the downstream property to receive the water in its natural state free from the destructive effects of sewage and industrial wastes, and state legislatures have enacted laws to protect the natural usefulness of rivers, streams and lakes.

Communities should assist the available natural purification agencies through the construction of adequate sewage treatment works and thereby safeguard the inherent right of citizens afforded by clean streams.

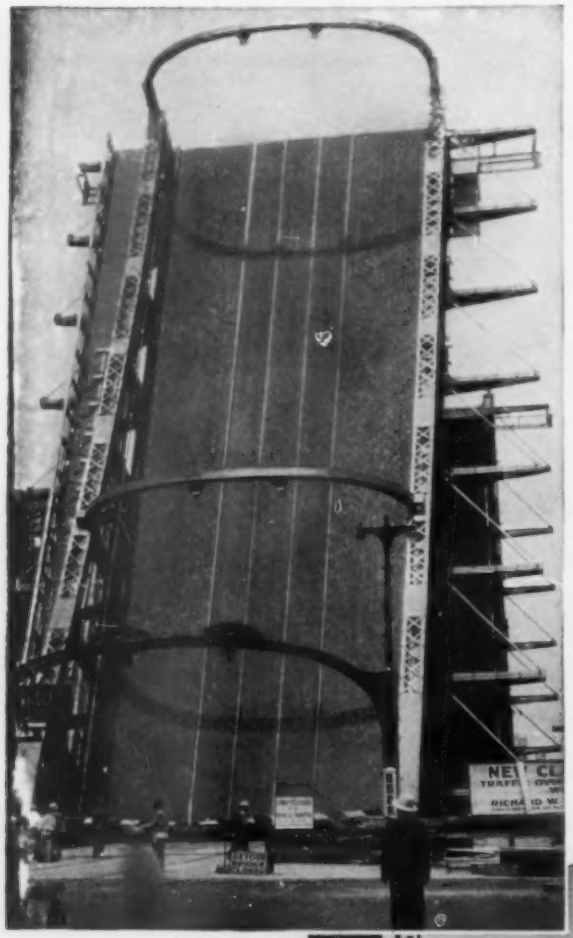
The construction of adequate sewage treatment works should be recognized by local governments as a civic and moral obligation—not only as a necessity made incumbent upon it by laws governing stream pollution, but also as a means of safeguarding the recreational playgrounds of their citizens. Perhaps the thought is best expressed in the words of Professor A. N. Talbot, "A responsibility that a civilized people owes to civilization is to make proper disposal of its wastes."

A. A. BRENSLEY,
Sanitary Engineer, Suhr, Berryman, Peterson & Suhr, Inc., Chicago, Ill.

## *Sewerage and Sewage Disposal Statistics*

THE 1931 edition of The Municipal Index will contain statistics on sewerage and sewage disposal prepared from original reports received from nearly 1,500 cities and towns in the United States. These statistics, which are similar to those published in the 1927 Municipal Index, are more complete and will be accompanied by footnotes which will greatly add to their value.

# *Once More* SERVICISED Fibrated Asphalt Planking Is Selected for a Chicago Bridge



To be a Chicago River Bridge is to have a real job, handling the pound of heavy traffic, with seldom a chance to rest a minute by getting up to stretch.

Some bridges have their choice of traffic, mostly the *bon-ton* kind with soft, speeding rubber cushions for wheels. Not so on Clark Street, Chicago. There, if you are the bridge crossing the main stretch of the river, north and south, you must be tough, strong and patient, with real stability, and with ability to stand the gaff,—the jar and pound, all of every day and night, hour after hour, of thousands upon thousands of wheeled vehicles —all kinds.

There they stream, head to tail,—passenger cars, Fords and rattlers; ten-ton motor trucks and five-ton wagons pulled by two tons of horseflesh; double truck sixty foot street cars with the "hoi polloi" jamming them to the roofs and hanging on somehow. Thud, crash, bang,—sunrise to sunset, sunset to sunrise, and the end of the business day worst of all.

That's why the engineers said, "Put Servicised Fibrated Asphalt Planking on Clark Street Bridge." It will stand the gaff. It's not slick or slippery; it's waterproof; it deadens noise and vibrations; it's economical, wears a long time and smooths out and heals itself under traffic.

And the new Clark Street Bridge will have an easier time than the old one, though it must take more abuse, all because it's covered with Servicised Fibrated Asphalt Planking.

*The makers will be glad to tell you more about it.*

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# Construction and Maintenance

**Engineering and Highway Departments**

## *Maintenance and Operating Costs of Automotive Equipment in Detroit*

EARLY in the year, J. E. Mills, Commissioner, Department of Purchases and Supplies, made an elaborate and detailed report on motor transportation operations for the city of Detroit to the Common Council. The following table gives the operating costs on a mileage basis of light, medium and heavy capacity units, patrols, ambulances, busses, light commercial 1-ton garbage units and motorcycles.

OPERATING COST AUTOMOTIVE EQUIPMENT
DECEMBER 1, 1925, TO NOVEMBER 30, 1926

| | Miles | Cost | Cost per Mile |
|---|---|---|---|
| Light passenger | 4,120,294 | $196,439.00 | $0.0477 |
| Medium passenger | 364,631 | 21,722.85 | 0.0596 |
| Heavy passenger | 259,989 | 24,825.29 | 0.1035 |
| Patrols, ambulances and busses | 508,723 | 51,856.62 | 0.0955 |
| Light commercial | 516,326 | 31,781.05 | 0.0616 |
| 1-ton garbage truck | 732,793 | 117,460.08 | 0.1603 |
| Motorcycles | 581,445 | 45,633.02 | 0.0785 |

MAINTENANCE AND OPERATING COST OF AUTOMOTIVE EQUIPMENT (EXCLUSIVE OF DRIVER) SERVICED AT MUNICIPAL GARAGE
DECEMBER 1, 1926, TO NOVEMBER 30, 1927

| | Miles | Cost | Cost per Mile |
|---|---|---|---|
| Light passenger | 4,432,699 | $177,644.91 | $0.0400 |
| Medium passenger | 355,536 | 18,359.82 | 0.0516 |
| Heavy passenger | 390,033 | 27,768.17 | 0.0712 |
| Patrols, ambulances and busses | 533,753 | 45,810.88 | 0.0878 |
| Light commercial | 497,268 | 32,522.18 | 0.0655 |
| Motorcycles | 597,725 | 47,688.32 | 0.0798 |

MAINTENANCE AND OPERATING COSTS OF AUTOMOTIVE EQUIPMENT (EXCLUSIVE OF DRIVER) SERVICED AT MUNICIPAL GARAGE
DECEMBER 1, 1927, TONOVEMBER 30, 1928

| | Miles | Cost | Cost per Mile |
|---|---|---|---|
| Light passenger | 4,734,772 | $168,103.43 | $0.0355 |
| Medium passenger | 251,930 | 11,960.54 | 0.0475 |
| Heavy passenger | 337,597 | 23,753.81 | 0.0646 |
| Patrols, ambulances and busses | 535,257 | 39,606.31 | 0.0738 |
| Light commercial | 96,835 | 5,355.99 | 0.0553 |
| Motorcycles | 560,154 | 41,600.29 | 0.0742 |

Cost of heavier equipment is figured upon a per diem basis and is available at all times.

MAINTENANCE AND OPERATING COSTS OF AUTOMOTIVE EQUIPMENT (EXCLUSIVE OF DRIVER) SERVICED AT MUNICIPAL GARAGE
DECEMBER 1, 1928, TO NOVEMBER 30, 1929

| | Miles | Cost | Cost per Mile |
|---|---|---|---|
| Light passenger | 6,632,247 | $226,968.21 | $0.0342 |
| Medium passenger | 191,945 | 9,021.03 | 0.0470 |
| Heavy passenger | 319,800 | 24,479.74 | 0.0765 |
| Patrols | 282,941 | 19,843.69 | 0.0701 |
| Ambulances | 76,201 | 4,347.88 | 0.0571 |
| Commercial | 446,003 | 25,749.32 | 0.0577 |
| Busses | 284,613 | 21,230.26 | 0.0746 |
| Motorcycles | 964,143 | 45,105.92 | 0.0468 |

Depreciation not included. Average replacement, three years.

The above does not take into consideration several department and divisions servicing gasoline from their own tanks or supplying it from an outside source.

## *Minnesota Increases Open Winter Road Mileage*

MORE miles of roads will be kept open this winter than ever before in Minnesota. The state will continue its winter maintenance program over the trunk highway system, and many of the counties are increasing the mileage which they plan to keep open.

The mileage of highways to be kept open by the state is nearly 7,000. While the Minnesota State Highway Department does not expect that it will ever be possible to keep the highways open 100 per cent of the time, it has come a little closer to the mark each year since the snow-removal program was started, four years ago. The Department has bought very little new equipment this year, but a large proportion of the maintenance men have been with the Department since snow removal first began, and with the added experience they hope to be able to open the roads sooner after each storm.

Sixty-one counties which replied to a questionnaire sent out by a local organization reported that 8,712 miles of state aid roads, 7,401 miles of county roads, and 5,114 miles of township roads were on the winter maintenance program. This makes a total of 21,227 miles of secondary roads on which definite reports have been received that they will be kept open.

These figures represent more than 80 per cent of the state aid roads, 70 per cent of the county roads, and 16 per cent of the township roads in the 61 counties. If the remaining 26 counties do proportionately as well, it will bring the total of open secondary roads to 30,000 miles, and the total of all roads to 37,000 miles. In addition to keeping a larger mileage open, many of the counties report that they have added new equipment and improved their organization so that they will be able to open their roads sooner after each storm.

—*Minnesota Highway News.*

## *Motorists of Louisiana Protected from Punctures*

THE Louisiana Highway Commission recently purchased four trucks to use as magnet road sweepers in keeping the state highways free from nails and other metal objects which would prove costly in punctures and accidents to motorists of the state.

The chassis of these Dodge trucks are of 150-inch wheel-base with cab equipment and dual tires at the rear. The bodies were built and mounted at the Highway Commission's Baton Rouge shops.

The trucks are each equipped with three 110-115-volt direct-current magnets, the current for which is supplied by a light plant mounted on the truck. A magnet is mounted at each side and one in the rear, giving a sweeping spread of approximately 100 inches.

FRANK GRIGSBY,
Equipment Superintendent.

## *Salvador Has Well-planned Road System*

SALVADOR is an example of well-planned road construction. In 1925 a contract was let for the construction of nearly 1,000 miles of national highways, which would give the country a very complete system. Considerable work has been done on this system. The low-cost road is constructed and local material used where possible, so that the country is getting the most mileage for the least expenditure. Nearly $2,000,000 has been spent on the system up to January 1, 1930. The program for 1930 will be quite small, but it is planned to construct the streets of Santa Ana during this year. The streets of San Salvador, the capital, have been constructed in a very satisfactory manner.

The country is desirous of completing the main north-and-south highway, which will constitute the Pan American Highway, as early as possible. At present this is more than 50 per cent completed. The main crop of Salvador is coffee, and the main source of road money is import, export and liquor taxes. Practically all of the machinery in Salvador is of American manufacture.

Salvador has a population of 1,688,129, an area of 13,176 square miles and about 976 miles of highways. The automobile registrations per year are about 1,808, or about one automobile to each 893 inhabitants.

—From a report of the American Road Builders' Association.

# STEEL WIRE TENNIS NET

"In reply to your letter of October 22nd," writes the Superintendent of Parks of a prominent city in the State of Illinois (whose name will be furnished upon request), "I want to say that I am very well pleased with the American Chain Link Tennis Net that I purchased from you for the Park Department. In having the wire net, more players can use the court in a day (when they need not put up and take down their nets) and in this way it cuts the cost of the upkeep of the court per player.

"The wire net always in place ready for play creates an interest for the game when the players need not buy a net. It is durable, cannot be cut like another net nor carried away by the players . . . therefore I think it is the only net for a public playground.

"We have ten courts in our parks where I am going to install the American Chain Link Tennis Nets next year."

**American Wire Fence Company, 7 South Dearborn St., Chicago, Ill.**

# AIDING the IDLE through Park and Recreation Departments

### *Inter-Department Cooperation*

"WE have suggested that Department of Recreation projects amounting to $1,950,000 be started this fall," C. E. Brewer, Commissioner of Recreation for the city of Detroit, reports. "These projects are being considered by the Common Council, but to date no money has been advanced or authority granted to start work.

"In addition, we are using a number of men who are receiving aid from the Welfare Department for clean-up work on the playgrounds. These men work three days for the city and then are given food orders and financial support from the Welfare Department. The Welfare Department receives appropriations from the Common Council. During the skating season, we plan to use a large number of men from the Welfare Department for work on the rinks."

### *Four Cities "Make Work" on Recreation Projects*

LAWRENCE P. MOSER, Commissioner of Recreation, Kalamazoo, Mich., reports: "Our Department has attempted in a small way to increase its facilities and at the same time help relieve the economic depression by building a new baseball field in conjunction with funds furnished by the Red Arrow Post, Veterans of Foreign Wars. This field is to be ready for use May 1, 1931."

From Paterson, N. J., is reported a special appropriation made to the Recreation Department for employing men to build handball courts on four playgrounds, and to lay out horseshoe courts.

Edward G. Lang, Director of Public Works, Pittsburgh, Pa., announces the resolution of that city to start construction on the new $150,000 swimming pool as a measure of immediate unemployment relief.

Several hundred unemployed have been given work by the Park Department in Los Angeles.

### *Recreation Department Organizes for Community Relief*

"THE San Antonio Recreation Department succeeded in giving work to many men by rushing to completion plans for enlargement and construction of new community houses on its various playgrounds. The economic fact that during business depression public parks and playgrounds are more in demand than at other times made this expansion plan not at all out of keeping with necessity.

"But there still remained the fact that many families were in actual want for food and clothing, and the Recreation Department was successful in obtaining the cooperation of the theaters of San Antonio, whereby for various articles of food as the price of admission, performances are given on Saturday mornings. The first performance is to be given for an audience whose admission fee has been three medium-sized potatoes. On the succeeding Saturday morning the price will be some canned article of food, and the next will be some clean article of clothing. These are to be turned over to the Associated Charities to be distributed to families actually in want.

"The Recreation Department is keenly alive to its responsibilities. While its principal work may be providing safe recreation for children, it is not forgetting that it may play an important part in the present economic situation."

R. L. BASS, JR.,
Superintendent of Recreation.

### *In Irvington, N. J.*

"THE Board of Commissioners adopted plans for the construction of a new 3½-acre playground and two field houses. The ordinance covering the cost of this work was unanimously adopted by the Commissioners. The necessary work was given to deserving unemployed laborers and skilled workers, all of whom are under the direct supervision of the Department. The total amount appropriated to date has been $60,000.

"Plans are also being made for the immediate construction of another playfield and public swimming pool," according to Philip Le Boutillier, Superintendent of the Department of Public Recreation.

### *"Any Unemployed" in Perth Amboy*

AN elaborate park and playground extension program is under way in Perth Amboy, N. J. According to a written agreement under which this program was launched, the contractors are to use the unemployed on these jobs. Any man out of a job, applying to the city for aid, is transferred by the city to the contractors with an order to be put to work.

### *Protecting the Idle Young Man Against the Evils of Idleness*

A MOVE initiated in Philadelphia has the double purpose of removing at least a few persons from the rank of the unemployed on the one hand, while it throws additional safeguards about the 17-to-25 youth during his hours of enforced idleness through unemployment, according to Charles H. English, Executive Secretary of the Playgrounds Association of that city. Mr. English says:

"Arrangements were completed on November 21 whereby ten men are to be employed for work at the recreation centers under the jurisdiction of the Bureau of Recreation, Department of Welfare. Meantime, our Playgrounds Association is raising a special unemployment fund to be used for recreation. We hope to get $10,000 and to extend the services outlined below through the 14 gymnasiums and 18 other recreational buildings:

"Service to Young People—17 to 25 years:

"1. Men to supervise soccer, football and other games outdoors from 12 to 3 P. M. Requires little training. 20 men.

"2. 14 gymnasiums could be used in mornings and afternoons up to 3 P. M. by men out of work. 14 men.

"3. Social dancing. Could use a three-piece orchestra for social dancing. Scheduled to be at a different building each evening. 6 musicians for 12 halls.

"4. Entertainment. Any person or group who could put on entertainments to be scheduled at different centers, i. e., magic, music, illustrated lectures, etc.

"5. Men to supervise the "rough-house game room" for young men 18 to 25. 6 men not especially trained.

"6. Second-hand pool tables would be useful as leisure-time activity of young men.

"In addition to this service to be extended through the Bureau of Recreation, we hope to be able to finance special workers in the 25 child-caring institutions to conduct story-telling, hand-craft work, drama and music."

### *Citizen Initiative*

IN Gainesville, Ga., a group of citizens appeared before the Board and advocated the building of a swimming pool, according to the National Recreation Association. Seventy of the citizens agreed to underwrite the project, provided the Board would set aside $3,000 a year for five years to be used for this purpose. The Board acted favorably on the request, and because of the extent of unemployment in the community, decided this would be an opportune time to build the pool.

### *The "200 Neediest"*

IN Hartford, Conn., on November 3, as one phase of emergency relief for the unemployed, 200 men were given work by George F. Hollister, Superintendent of the Park Department. In the selection of these men, preference was given to the most needy of those who had registered with the Community Employment Service, recently established by the city and the Hartford Community Chest.

# The "Pittsburgh-Des Moines" Incinerator Utilizes ALL of the Garbage as Fuel

1—Burning Hearth

2—Sloping (Drying) Hearth

3—Stoking Doors

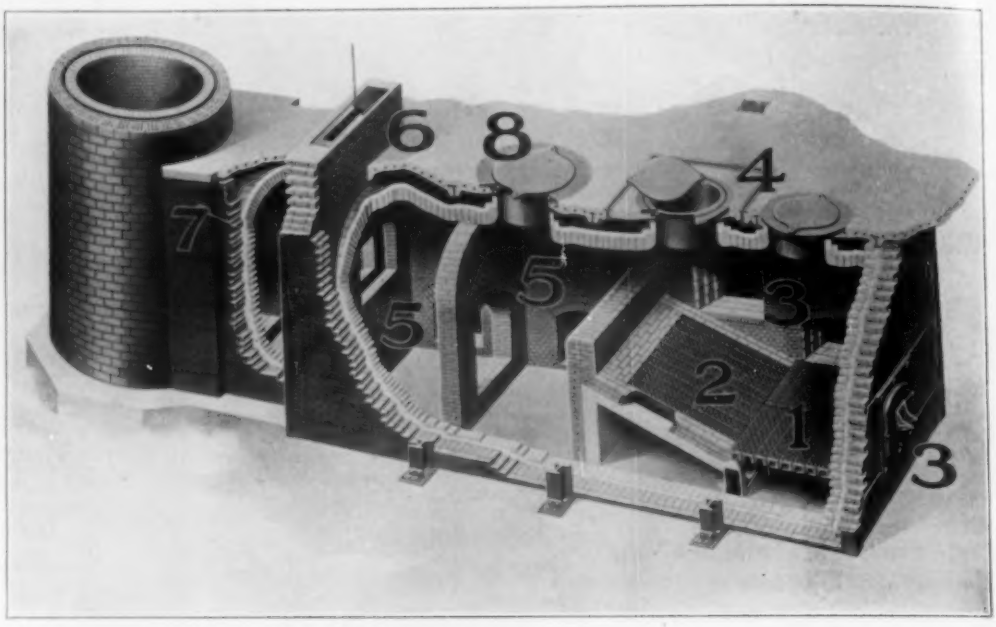
4—Charging Doors

5—Combustion Chambers

6—Damper between Gas Combustion Chamber and Flue

7—Stack

8—Carcass charging Hole




*One-unit Single Hearth PDM Furnace*

## It saves the equivalent of 120 pounds of coal in every 2000 pounds of garbage burned.

*Wellsville, N. Y.*
*25 Tons—Daily Capacity*

One pound of ordinary mixed garbage and refuse, **after drying,** has a fuel value equal to approximately 3/10 of a pound of coal. To obtain maximum operating efficiency and economy an incinerator should, therefore, be so designed that **all** of the dried garbage can be utilized as fuel.

About 20 per cent of the dried garbage in many other incinerators becomes lodged in or rolls to a "dead" portion of the furnace, that is, between the main mass of wet refuse and the furnace outlet flue. This "dead cell" material can never serve efficiently as fuel to dry another incoming wet charge of rubbish. Why waste this usable fuel equivalent—equal to 120 pounds of coal in every 2000 pounds of garbage charged into the furnace? There are no "dead cells" in the PDM furnace.

Wet garbage is not dumped directly on the fire in the PDM furnace. It goes first on the sloping drying hearths (No. 2) to dry out, then rolls or is raked down to the burning hearths to serve as fuel. Selective charging through several holes breaks up the garbage into smaller piles or cones to provide the maximum surface exposure to the hot gases and flames passing from the burning hearths directly over the wet garbage on the drying hearths.

***State your population and write today for your copy of the new PDM Incinerator Catalog.***

# Pittsburgh-Des Moines Steel Company

**3481 Neville Island, Pittsburgh, Pa.** **685 Hudson Terminal Bldg., New York, N. Y.**

**Des Moines** **San Francisco** **Seattle** **Chicago** **Atlanta** **Dallas**

Do you mention THE AMERICAN CITY? Please do.

# METHODS and COSTS of REFUSE COLLECTION and DISPOSAL

## *Reasonable Cost a Feature of Hagerstown's System*

IN Hagerstown, Md., garbage is collected three days per week, and tin cans and kitchen waste are collected once a month. This work is contracted for at a cost of $275 per month.

The contractor feeds the garbage to hogs beyond the city limits, and cans and other solid matter are put on the public dump. Here a man is employed to supervise the dumping. Besides his salary, he receives any salvage material which may be deposited. All waste paper and boxes are burned on the dump.

REUBEN MUSEY,
Mayor.

## *City and County Health Departments Combined*

ON September 1, 1930, the City Health Department of Anderson, S. C., was combined with the Anderson County Health Department. All health work will now be under the supervision of the Director of the County Health Department.

So far, it has not been found necessary to make any radical changes in the sanitary department of the city. At present all trash, rubbish and garbage is placed in containers and collected by trucks once or twice a week. Such material is disposed of by burning at the city dump and incinerator outside the city. The ashes and other non-combustible rubbish are used to fill in low places in this area.

For the present, this manner of disposal will be continued, but it is possible that in the near future some changes will be made.

E. E. EPTING, M. D.,
Director, City and County Health Department.

## *Municipal Collection and Incineration Satisfactory*

BRADFORD, PA., is a city of 18,525 people in the heart of the high-grade oil fields of Pennsylvania, composed of over 4,000 families and the various factories, hotels and offices, which make the number of garbage collections slightly over 5,600 each week. Natural gas is burned almost exclusively in Bradford. The collections for the months of August and September total 995 tons.

Two-ton trucks and teams are used in collecting, but it is expected that within a year trucks will be used exclusively. The city is improving the streets and it will be possible to make collections more economically with trucks than with the horses. The trip to the incinerator and back to the city can also be made in one-third the time it takes with the horses.

The garbage is wrapped in paper, and one collection per week is made of all kinds of refuse. There are no extra charges, except on special calls, when a charge is made on quarter, half or full loads. No salvage is attempted, as the labor cost is too high and the small amount of salvage possible consists mostly of iron and other metal. Garbage and refuse is collected from the rear of the house or building and set on the curb, where it is loaded. The empty container is put back in the place from which it was taken.

Until about ten years ago the garbage was collected by men living in the townships, who fed the garbage to hogs, but the odor from the pens was so objectionable that this method was discontinued and the present municipal collection and sanitary incineration was established. The following table shows the number of men and vehicles employed for collection and disposal:

| | |
|---|---|
| Men employed in collection | 12 to 13 |
| Men employed in incineration | 4 |
| Motor-trucks | 4 |
| Teams and wagons | 2 |

Weekly individual collections total over 5,600, the amount of the excess garbage collected being $1,865 for 1929. The average wage is over $5 per day. The Department disposed of 220 loads of rubbish during Clean-up Week.

The following table gives costs for collection and disposal for the years 1921 to 1930:

| | |
|---|---|
| 1921 | $35,567.62 |
| 1922 | 33,203.38 |
| 1923 | 33,327.14 |
| 1924 | 33,877.06 |
| 1925 | 33,747.26 |
| 1926 | 33,777.48 |
| 1927 | 32,339.15 |
| 1928 | 34,483.39 |
| 1929 | 36,893.26 |
| *1930 | 36,900.00 |

* Estimated.

The larger expenses for 1929 and 1930 are accounted for by the change from horses to trucks and extensive repairs made to the 40-ton incinerator.

JOHN L. McCUTCHEON,
Superintendent, Sanitary Department.

## *Privately Owned Piggery Takes Lansing's Garbage*

THE garbage from the city of Lansing, Mich., is fed to pigs at a privately owned piggery. The greatest problem here is to keep the garbage free from glass, crockery and tin cans as well as water. In answer to complaints, customers claim that dogs nose off the covers, permitting rain to enter the cans. A lock cover for the cans is contemplated.

The collection equipment consists of seven platform trucks. Three men are used on each truck, one for each side of the street, and a driver. The full cans are collected and clean cans left in their place. A transfer building is operated where garbage is dumped into tanks for delivery to the piggery, the delivery equipment consisting of three large open-top tank trucks which will hold approximately six tons of garbage. When dumping garbage at the piggery, the front of the tank is tilted to about a 30-degree angle, and two men pull the garbage from the rear end with hooks while the truck is moving in low gear, thus distributing the garbage to enable all the pigs to get at it.

These trucks are equipped with steam pipes along the bottom of the tanks for heating the garbage in winter. This heats the garbage enough at the transfer house so that it is still hot after being drawn 22 miles in the coldest weather.

ALVIN S. POTTER,
Superintendent of Garbage Department.

## *Collection from Homes Only in Davenport*

THE city of Davenport, Iowa, collects only from homes; wholesalers, restaurants, hotels and places of business, including grocery and fruit stores, being required to do their own hauling. The garbage must be wrapped and placed in covered garbage cans, a supply of cans being used, if one is not sufficient to take care of the garbage.

Two collections per week are maintained in the residential district for a nine-month period, and one collection per week during the remaining three months. This collection includes cans and broken kitchen utensils, ashes and rubbish being picked up separately. Trucks and wagons with canvas covers are used to haul garbage.

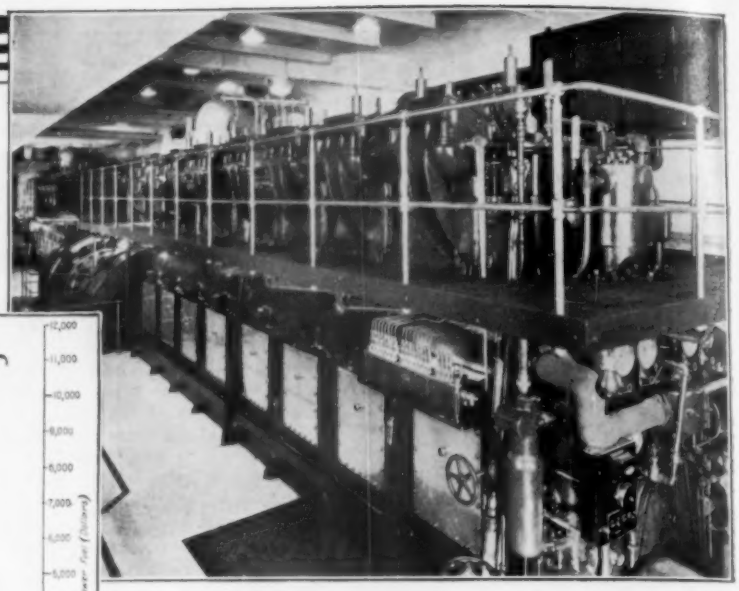
There are many low places within the city and also a levee front at which in the past nine years a fill of garbage, ashes, and rubbish has been placed. No odors are experienced, as the garbage is collected and disposed of quickly. The fill on the levee now covers about five acres, eight feet deep, and is valued at about $40,000 by the city, which is now planning to make it into an athletic field, at a cost of $225,000.

Collectors are paid $8 per day, each man being required to furnish his own outfit. Extra help receives $3.60 per day for 8 hours' work, and foremen receive $4 per day. The annual appropriation is $30,000.

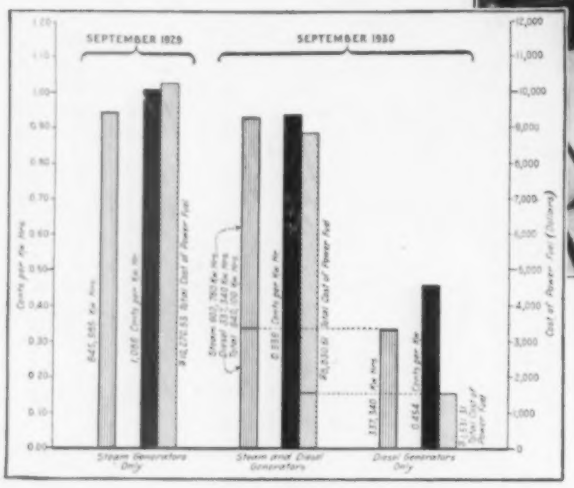
THEODORE J. MEYER,
Health Officer.

## *Philadelphia Tries New Garbage Truck*

FIVE new trucks with bodies of metal and a closed top into which a low-hung trough empties itself when a button is pressed, are being tried out by the Bureau of Street Cleaning, Philadelphia.



AT RIGHT—The R. H. Macy Installation of two 8-cylinder 1000 H. P. Fulton-Diesel Engines rated at 225 R. P. M.




AT LEFT—Chart showing the savings in power produced with Fulton-Diesel Engines. These costs include fuel, labor, supplies and lubricants.

# R. H. MACY...*World's Largest Department Store* Chooses Fulton-Diesels

With the same thoroughness that built the largest department store in the world, R. H. Macy and Company investigated the engines and plant facilities of all American Diesel builders—and chose Fulton-Diesels.

The installation of Fulton-Diesels in this great store effected a saving in power costs that amounts to a saving of approximately $1,300 per month. Today Fulton-Diesels are effecting savings in power costs in practically every type of installation.

We shall be glad to send you bulletins on FULTON-DIESELS for any service and our engineering department will be pleased to discuss power improvements with your engineers, consultants or architects, no obligation of course. Fulton Iron Works Co., St. Louis, Mo. . . . New York Office, 82 Wall Street, Boston Office, 113 Broad Street. Offices in all other Principal Cities.

SUCCESSFUL ENGINE BUILDERS FOR OVER SEVENTY-FIVE YEARS

808

# FULTON DIESELS

**100 TO 2000 HORSE POWER**

# "Keep Your Streets Clean"

## Items on Street-Cleaning Problems and Methods

### *Minnesota Prepares for Snow Removal*

THE snow-removal equipment of Minnesota consists of 200 V-type plows with trucks, 18 rotary plows and 40 heavy tractor plows. Each of the V-type plows, with a crew of two or three men, is assigned to keep the highways clear in a given district. When the snowfall is too heavy for these plows, the tractor and rotary plows are sent out from headquarters established at strategic points throughout the state.

In addition to its snow-removal equipment, the Highway Department now has nearly 800 miles of snow-fence, an increase of about 100 miles over the snow-fence mileage of last winter.

The State Highway Department has no special appropriation for snow removal, but pays for this work out of its regular maintenance fund. Last winter, when the snowfall was considerably below normal, the work cost $275,000. In each of the two previous winters, however, the cost was approximately $500,000.

### *European Street Cleanliness a Model for New York*

DR. BERNARD SACHS, Chairman of the Committee of Twenty on Street and Outdoor Cleanliness, appointed last year by the New York Academy of Medicine, returned recently from a three months' tour of Europe, during which he visited London, Paris, Berlin, Vienna, Munich, Zurich and other continental cities. Dr. Sachs said that in comparison with these cities New York has the least cleanly streets and parks.

"Everywhere abroad," remarked Dr. Sachs, "there is a proper regard for outdoor cleanliness and everywhere the people are expected, and are by ordinance compelled, to cooperate with the city authorities.

"In all the larger cities in Europe street conditions constitute an important sanitary problem, which has been studied carefully by competent sanitary and technical experts. New York's especial problem should have been studied and solved this way many years ago."

Dr. Sachs said he had had an opportunity to study the system developed in Vienna five years ago, when extreme economy had to be practiced. It is a dustless system of collection, he said, covered house receptacles of a standard size being emptied at stated hours into covered carts so arranged that not a particle of garbage or dust is scattered during the process of loading or transportation. The people of Vienna realize that a clean city means a healthy city, he declared.

—The New York *Sun*.

### *Knoxville, Tenn.*

KNOXVILLE, Tenn., with a population of 143,664, is the largest city in the eastern half of Tennessee, a port of entry and the county-seat of Knox County. It lies among the foothills of the Clinch and the Chilhowee Mountains at an altitude of 850 to 1,000 feet above sea-level. Twenty-five men, including a foreman, are employed in keeping the 2,000,000 square yards of streets clean, using one Pierce-Arrow flusher of 1,200 gallons capacity, one White flusher of 1,500 gallons capacity, one 1,500-gallon International flusher, one sweeper, one pick-up truck, one pick-up cart and six white wing carts. For 1928 and 1929 the annual street-cleaning appropriations were $28,100. This has been reduced to $27,638 for 1930.

A. H. BRADY,
Superintendent of Streets.

### *Brigham, Utah*

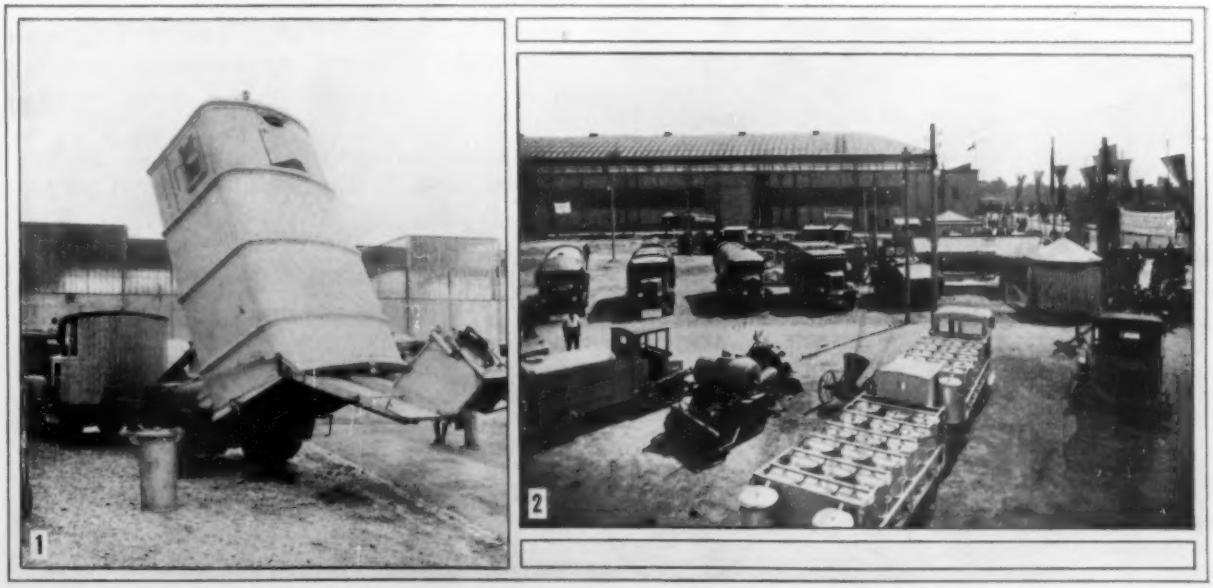
BRIGHAM is a city of 5,600 population in northern Utah, 20 miles north of Ogden, with an elevation of 4,307 feet. The region is famous for its peaches and other fruits, and the city is practically a huge orchard with an irrigating ditch along every street. The annual appropriation for street cleaning for the past three years was $800. This takes care of cleaning 25,000 square yards of streets three times a week with one 5-ton 1,200-gallon flusher, and one broom man with a truck.

C. O. ROSKELLEY,
City Manager.

### *Alton, Ill.*

THIS city of 32,000 population is located on the Mississippi River. The business streets are on the bottom lands, but the residential part of the city lies on bluffs which rise to a height of 250 feet. Twice each week the 27,800 square yards of business streets only are cleaned by the four men employed by the street-cleaning department, using shovels, brooms, and two carts, a truck being used about one day each week. The street-cleaning appropriation for the past three years has been $3,000 per year.

C. F. ABRAHAM,
City Engineer.

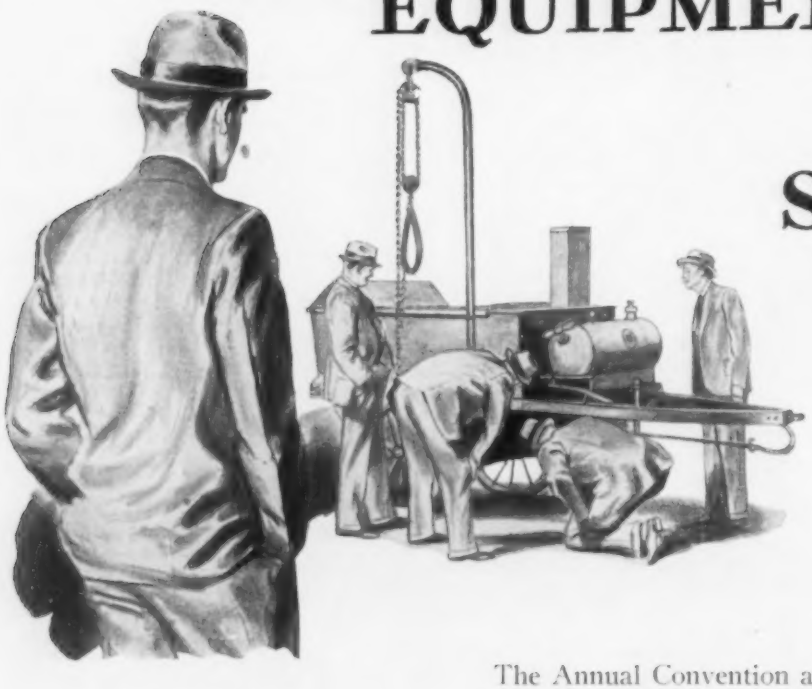



EXHIBITS OF MUNICIPAL MOTOR EQUIPMENT AT THE RECENT LEIPZIG FAIR

1. A garbage truck which prevents spilling garbage when loading. 2. In the foreground, a pair of trucks for hauling street refuse, and also a street sweeper and a sander

# *You will want to see...*

# LITTLEFORD
## ROAD MAINTENANCE EQUIPMENT



*at the*

## ST. LOUIS SHOW

***Jan 10 to 16***

*Asphalt Kettles*
*(Oil and Wood Burning)*
*Asphalt & Emulsion Sprayers*
*Tool Boxes*
*Tool Heaters and Surface Heaters*
*Water Heaters and Concrete Heaters*
*Steel Mortar Boxes*
*Salamanders*
*Joint Fillers*
*Squeegee Machines*
*Tools and Pots*
*Traffic Line Markers*
*Grout and Mastic Mixers*

The Annual Convention and Road Show of the American Road Builders Association is an event looked forward to by everyone engaged in highway work. It is a vacation and an education combined.

In just a few weeks many of you will be heading for St. Louis. When you get there, we want you to keep your weather eye peeled for the large LB Sign of a Good Heater that marks the Littleford booth. There will be new equipment that we want you to see. We're not saying a word about it now, because we intend to surprise you!

By the way, it would be a good idea to look over our catalog before you go to the show. Have you a copy handy? If not, fill out the coupon and mail it. We'll send the catalog by return mail.

Littleford Bros.
500 E. Pearl St.
Cincinnati, Ohio

Gentlemen:
Without obligation to me, send your complete catalog showing Littleford Road Maintenance Equipment.

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**SINCE 1900**

THE SIGN OF A GOOD HEATER — LB — LITTLEFORD BROS. CINCINNATI, OHIO

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REG. U. S. PAT. OFF.

When you write for that catalog, kindly mention THE AMERICAN CITY

# Who's Who among Sanitation Officials

***One of a Series of Portraits of Engineering Officials Which Has Appeared Monthly Since April, 1928***

COLVER L. SANDERS
Supt., Sewer Maintenance
Dept. of Public Works
Providence, R. I.

L. E. DEMPSEY
Supt. of Sanitation
Greensboro, N. C.

W. H. CARRIGG
Supt. of Sanitation
Sioux City, Iowa

HARRY W. FLEDDERMAN
Div. of Street Cleaning
Louisville, Ky.

I. R. WEEDON
Supt. of Street Cleaning
Flint, Mich.

EDW. H. GERLACH
Supervisor, Garbage and Ash Collection
Milwaukee, Wis.

J. C. McALLISTER
Supt., Sanitary and Street Dept.
Fayetteville, N. C.

M. A. MILLER
Member, Sanitary Committee
Dothan, Ala.

JAMES D. TRACY
Garbage Bureau
Erie, Pa.

M. C. GEAREN
Supt. of Incinerator
Racine, Wis.

IRVING STONE
Supt., Incinerator Dept.
Providence, R. I.

W. G. MITCHELL
Supt. of Street Cleaning Dept.
Norfolk, Va.

CARL NYGARD
Supt. of Incineration
Minneapolis, Minn.

E. A. MILLER
Supervisor of Maintenance
Rochester, N. Y.

# He Can Help You Curb the "*Autocides*"*

Motor vehicle deaths — and there were 31,000 in 1929—are fewest in communities that have adequate Safety Patrols.

The Motorcycle Policeman is a tried and proved safeguard against auto accidents. Where he is on the job, traffic is better controlled—there is less reckless driving —less speeding—*fewer fatalities.*

It is significant that most of the cities which have made the best showings in the nation-wide safety campaign employ squads of police mounted on Harley-Davidson Motorcycles . . . Surely *your* community aims to do everything possible to protect your citizens against auto accidents.

*May we send you a free copy of our new Police Booklet? It gives the facts you want about America's Police Motorcycle and how to use it.*

HARLEY-DAVIDSON MOTOR CO.
Department M Milwaukee, Wis.

## *Safest City Contest Won by Baltimore*

In the 1929-30 contest conducted by the National Safety Council, Baltimore stands as the "Safest City". Its record is 19 consecutive days without a motor vehicle fatality.

The cities are ranked by multiplying their population by the number of days free from fatal accidents. In this ranking the three leaders are Baltimore; Fitchburg, Mass.; and Evanston, Ill. Rochester, N. Y., and Providence, R. I., received honorable mention.

* *This is the name suggested by one magazine to take the place of "motor vehicle fatality".*

# HARLEY-DAVIDSON

*The Police Motorcycle*

# TRAFFIC—FIRE—SAFETY

**Items for Departments of Public Safety**

## *For Better Traffic Facilities and Less Unemployment*

IN the field of street traffic control," said Secretary of Commerce Robert P. Lamont, in a statement issued November 9, "there are many improvements which are required in almost every community. In general, these do not involve large expenditures of capital, and are of such a character that a large part of the cost is represented by labor.

"Now would seem to be a very favorable time to undertake a kind of community house-cleaning with respect to traffic matters. In addition to the fact that immediate benefits would be obtained in greater safety and convenience, it is also apparent that many of the materials required can be obtained at a more favorable price than is usual.

"Among the improvements which might be pushed vigorously during the winter are the following:

"1. *Improvement in Traffic Signs.*—There are few cities in the country that have adequate traffic signs. In view of the fact that the National Conference on Street and Highway Safety has now issued a standard manual of street traffic signs, signals and markings, any community may install an entire system with confidence that it will be uniform with other cities.

"Communities with antiquated signs should replace them with standard signs. Even in those cities where standard signs have been used, there is generous opportunity to improve conditions by expanding the installations and by repairing, repainting and renovating existing signs.

"2. *Removal of Obstructions to View.*—At many highway intersections and railroad grade crossings and on the insides of highway curves there are obstructions to view which could be easily remedied and which create serious hazards. These include shrubbery, low-hanging limbs, small buildings, billboards and steep banks. Correction of the conditions at many points would involve very small expenditures, mostly for labor.

"3. *Snow Removal.*—Many cities and states have discovered that a comprehensive snow-removal campaign is a profitable investment, as open streets and highways encourage maintenance of travel and business during the winter months. This applies not only to the main trunk routes, but as well to many of the secondary ways. Snow removal is largely a hand job in smaller cities, and gives short-time employment at times when suffering is often most acute.

"4. *Curb Cut-Backs.*—One of the simplest and most-needed traffic relief measures at many intersections is a correction of the curb radius. Many city streets were built before the days of the automobile. The curvature of the curbs at intersections is often so sharp that automobiles have difficulty in turning and are crowded so that accidents and congestion result.

"Many dangerous intersections have been rendered comparatively safe simply by setting back the curbs on a more generous radius. There are few cities that do not have many locations where such curb corrections would be a great traffic improvement.

"5. *Protection of Physical Hazards.*—Many cities have failed to give absolute protection to all locations of serious traffic hazard. Hillside streets should be provided with guard-rails, similar to those used in highway practice. Dead-end streets should be clearly marked, and where there is a hazard beyond, such as a sharp drop or water, strong barriers should be constructed. Conditions such as those described take hundreds of lives which could be saved if adequate and inexpensive physical barriers were erected.

"6. *Pedestrian Safety Island.*—It is generally recognized that one of the most effective means of protecting pedestrians from traffic accidents is through the construction of safety islands. Refuges of this type are especially necessary in centers of wide and heavily traveled thoroughfares and at such places as street-car stops where it is necessary for pedestrains to stand in the roadways. Raised platforms with adequate illumination are generally favored.

"7. *Street Obstructions.*—In practically all American cities there are streets that are slightly used at the present time which could be converted into useful traffic arteries by comparatively inexpensive improvements."

## *The Significance of Arson Often Overlooked*

"INCENDIARY fires play a considerable part in the amount that each citizen must pay for the insurance protection which is so essential for him to have on his home or other property," A. Bruce Bielaski, Assistant to the General Manager of the National Board of Fire Underwriters, told members of the National Fire Waste Council at their recent conference in Washington. "The rates paid for insurance must of necessity be sufficient to cover losses of all characters and, if possible, to leave for the insurance company a reasonable return for the service it renders. It will pay the individual citizen in dollars and cents to take a real interest in the detection and prosecution of those responsible for incendiary fires.

"What part of the annual fire loss of approximately $470,000,000 is due to fires that are deliberately set is impossible of exact statement. An experienced fire chief in one section of the country told me that fifty per cent of their fires in his judgment are incendiary; in other sections twenty-five or thirty per cent; but the known or definitely established incendiary fires of course represent a much lower percentage. It seems to me that about one fire in five is incendiary in character. Whatever may be the extent of the loss by such fires in dollars and cents, the total in this sense is insignificant compared to the fact that human lives every year in considerable numbers are sacrificed by the arsonists.

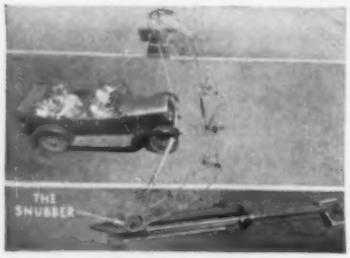
"Arson has come to include by statutory enactment all malicious fires, whether the property burned be that of the burner or another. Too often even today, with the progress that has been made in greater cooperation of all officials and with the increasingly intelligent interest of the public in the supression of incendiary fires, we find a prosecuting attorney or some other public official still inclined to look upon the crime of arson either as a problem in which he has no great interest or as one of such difficulty as to be undertaken only in the rarest and strongest of cases. If we can have in every jurisdiction just a few citizens who inquire of the prosecuting attorney what he is doing or has done along the lines of arson or suspected arson in his jurisdiction, we shall find fewer district attorneys inclined to treat the crime lightly and to regard it as an insurance company matter. Such cases require more effort and possibly are fraught with greater danger of lack of success than other classes of cases, but in the results obtained may be found a real measure of the ability and the character of service rendered by the prosecuting attorney.

"Any public official having definite knowledge of the commission of the crime of arson, whether insurance is involved or not, can secure the help of the agents of the National Board of Fire Underwriters in the investigation and prosecution of such cases. Without the limitations of municipal, county or state lines, they are able to render assistance which the local officer might otherwise not be able to obtain. They seek no reward for their work in the way of public recognition and desire that such recognition as may be due for successful service shall go to the public official who after all has the responsibility in the matter, and upon whose good-will and cooperation the agents must depend for success in their work."

This is too expensive

# STOP grade crossing accidents NOW...

## with THE HIGHWAY GUARDIAN




At the moment of contact with the barrier, the wire rope gives an even bearing against the car. The snubber has not started to act.

Compare the position of the snubber in this picture with its position in the illustration above. Here the snubber has moved to take up the shock.

THAT grade separation is inadequate as a safety measure at crossings is evident from the continued annual increase in crossing crashes and fatalities. High cost defeats its effectiveness. Also the fact that three new grade crossings are opened for every separation completed makes the situation worse instead of better.

To solve this important problem, to get the upper hand without delay, only THE HIGHWAY GUARDIAN offers a solution that meets both safety as well as economic requirements. First cost is reasonable; installation can be made at once; and thorough protection is assured.

THE HIGHWAY GUARDIAN is especially effective for use outside of the large centers of population where most of the serious accidents occur. Installed at new, as well as at existing grade crossings, it will solve the crossing problem at a cost that is not prohibitive. Consider THE HIGHWAY GUARDIAN'S many advantages when grade crossing safety is again being discussed.

THE
CROSSING GATE
THE MOTORIST
CANNOT CRASH

FRANKLIN RAILWAY SUPPLY CO., Inc.
New York Chicago St. Louis San Francisco Montreal

# THE HIGHWAY GUARDIAN

FRANK J. KRUSE
Police Chief
Manistee, Mich.
(Appointed 1927)

FRANK J. DUDA
Fire Chief
Bessemer, Mich.
(Appointed 1929)

W. T. BLAIR
Police Chief
Ashland, Wis.
(Appointed 1907)

ARTHUR I. ROSSO
Police Chief
Mt. Clemens, Mich.
(Appointed 1921)

W. H. MITCHELL
Fire Chief
St. Joseph, Mich.
(Appointed 1928)

# Who's Who in Public Safety

***The 36th of a Series of Portraits of Fire and Police Chiefs Which Has Appeared Monthly Since January, 1928***

FRANK F. TROMBLEY
Fire Chief
Sault Ste. Marie, Mich.
(Appointed 1921)

FRED H. BEERSTECHER
Fire Chief
Three Rivers, Mich.
(Appointed 1920)

T. GATES MATHEWS
Fire Chief
New Bern, N. C.
(Appointed 1930)

GEORGE L. MASON
Police Chief
Fort Atkinson, Wis.
(Appointed 1928)

C. W. JACOBS
Police Chief
Jackson, Ohio
(Appointed 1915)

OLIVER D. SHELDON
Police Chief
Kenton, Ohio
(Appointed 1920

W. E. LIEBNER
Fire Chief
Cheboygan, Mich.
(Appointed 1924)

A. L. MILSPAUGH
Fire Chief
Merrill, Wis.
(Appointed 1901)

M. E. GRAHAM
Police Chief
Xenia, Ohio
(Appointed 1920)

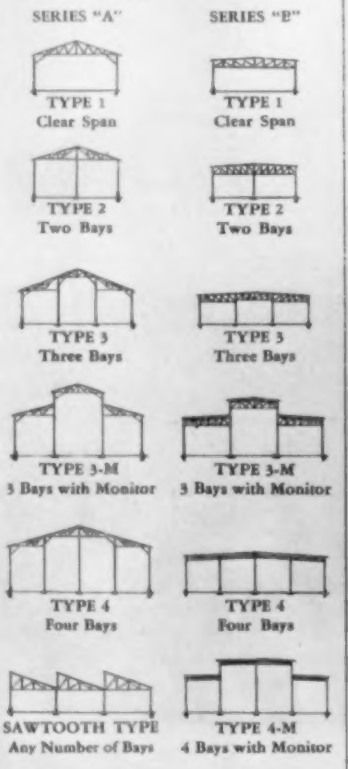
# TRUSCON

## *if it is made in Steel—Truscon can make it*

The very extensive use of Truscon Steel Products for public building, roads and construction of all kinds is evidence of the high regard which public officials have for Truscon quality. This regard is based on the intrinsic merit of Truscon Products and the superiority of their design.

### STANDARDIZED BUILDINGS

Flat Roofs or Pitched Roofs in all Types and Sizes

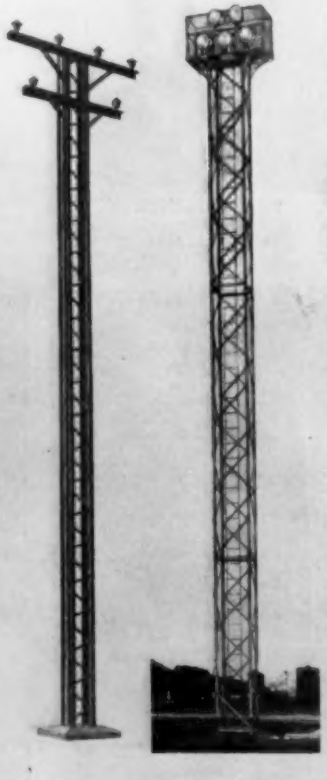



### STEEL PRODUCTS FOR REINFORCING CONCRETE ROADS AND PAVEMENTS

Truscon Highway Products include Welded Steel Fabric and Rib Bars for reinforcement, Dowel Contraction Joints, Air-Cushion Expansion Joints, Steel Road Forms, Curb Bars and All-Steel Highway Guards.

### STEEL POLES AND TOWERS

For Overhead Construction and Flood Lights



### Other Truscon Products

**STEEL WINDOWS**
Superior in design and workmanship. A complete line with a type for every building.

**STEEL DOORS**
Available in stock types and in special designs for hangars, fire houses, and industrial buildings.

**STEELDECK ROOFS**
Insulated to any degree and water-proofed. Light in weight—fireproof—quickly erected—economical.

**FIREPROOF CONSTRUCTION**
Steel Joists for floor and roof construction. Everything in Reinforcing Steel for concrete.

TRUSCON STEEL COMPANY YOUNGSTOWN, OHIO

*Warehouses and Offices in Principal Cities*

Truscon Steel Company of Canada, Limited, Walkerville, Ontario

# USE THIS FREE SERVICE

THE AMERICAN CITY should always be mentioned when writing for this material which is furnished free

Keep your files up to date by checking over these items each month and writing for those you need.

## PUMPS FOR SEWAGE DISPOSAL PLANTS

Bulletin 126 recently issued by the Chicago Pump Co., 2336 Wolfram Street, Chicago, Ill., gives a short treatise on the necessity for sewage treatment work and the part a non-clogging open-shaft centrifugal sewage pump plays in sewage handling and treatment.

## A HIGH-DUMPING TRACTOR-MOUNTED SHOVEL

The new Trackson high shovel, Model 20, mounted on a McCormick-Deering tractor, which digs, moves, and loads materials and may be equipped either with crawlers or wheels, is described completely in literature which may be secured from the Trackson Co., 1322 S. First Street, Milwaukee, Wis.

## TRAFFIC BEACONS

Folder GEA-741B of the General Electric Co., Schenectady, N. Y., describes G-E Novalux traffic beacons for locating at trolley loading points to warn on-coming motor traffic and protect pedestrians and for routing traffic at intersections and other danger points.

## NEW LARGE-CAPACITY BUCKET LOADER

A new large-capacity super-loader, the Model 62 crawler-mounted bucket loader, which has a height of 19 feet, 4 inches, a clean-up width of 7 feet 6 inches and a capacity of 2 cubic yards a minute, has been announced by the Barber-Greene Co., 515 Westlake Ave., Aurora, Ill., which will be pleased to send complete information on request.

## WEATHERPROOF STREET SIGNS

Joslin weatherproof street signs, which are made entirely without bolts or screws, the entire assembly being locked by one nut at the lower threaded end of the center post, are described in literature which may be secured on request from A. D. Joslin Mfg. Co., Manistee, Mich.

## VENTURI TYPE METERS

Bulletins describing Simplex venturi-type meters, which are accurate, reliable, simple, and easy to check and adjust, will be sent to interested municipal officials on request by the Simplex Valve & Meter Co., 6743 Upland St., Philadelphia, Pa.

## OIL-BURNING KETTLES

A copy of the Blue Book of Connery & Co., Inc., 4000 N. Second St., Philadelphia, Pa., will be sent to any municipal official interested in the selection of the right tar and asphalt kettle for special requirements.

## VALVES, PIPE FITTINGS, FIRE HYDRANTS

The Kennedy Valve Mfg. Co., Elmira, N. Y., will gladly send data and prices on Kennedy valves, pipe fittings, fire hydrants, gate-valves and post indicators, to city officials.

## CONTINUOUS TRAFFIC MOVEMENT

Bulletin No. 2000 of the Tokheim Oil Tank & Pump Co., Fort Wayne, Ind., is an interesting discussion of efficient traffic control through the use of the Chronoplan system, which permits traffic to move continuously at a safe speed.

## SPLIT HICKORY FIBER

Lay split hickory fiber for street-cleaning brooms is made by specially built machinery which insures a high grade. For complete information and prices, city officials should write to the Lay Mfg. Co., Dallas, N. C.

## ASPHALT PAVING DATA

The Asphalt Institute, 801 Second Ave., at 43rd St., New York, a national institution organized for constructive, educational and research activities, will gladly send to interested municipal officials valuable information regarding asphalt paving for city streets and highways.

## STATIONARY DIESEL ENGINES

The McIntosh & Seymour Corp., Auburn, N. Y., will be pleased to submit definite performance figures together with references to early and recent installations of McIntosh & Seymour engines, which are available in types, sizes and speeds for a wide variety of stationary requirements, including a recently introduced compact, low-head-room, high-speed type for driving generators which is especially recommended for municipal power stations.

## LARGE VALVE INSERTIONS

Complete data regarding Smith valve-inserting machines and how valve insertions in water-mains as large as 24 and 30 inches may be easily and safely made when the mains are under full water pressure, will be sent without obligation to municipal officials by the A. P. Smith Mfg. Co., East Orange, N. J.

## WATER TOWERS AND TANKS

The R. D. Cole Mfg. Co., Newnan, Ga., manufacturers of standpipes, boilers, and flumes, as well as towers and tanks for all requirements and types of installation, will be pleased to send complete data on any of its products to interested municipal officials.

## TRAFFIC SIGNALS AND CONTROLS

When installing new traffic control systems or changing over old ones, city officials should secure from the Essco Mfg. Co., Peoria, Ill., information covering the latest types of Essco traffic signals and controls.

## SEWER AND PIPE CLEANERS

Literature describing Coleman's sewer- and pipe-cleaning devices, which will remove all stoppages from pipes and sewers, may be secured without obligation from Allan J. Coleman, 208 N. Wabash Ave., Chicago, Ill.

## LIQUID CHLORINE

Complete information regarding the use of liquid chlorine for the sterilization of water and the disinfection of sewage will be sent on request by the Electric Bleaching Gas Co., 9 E. 41st St., New York, to interested water-works and sewage-plant officials.

## DEPENDABLE FIRE HYDRANTS

Full information regarding the Columbian fire hydrant, one of the important features of which is the dependable automatic drain, the simplicity and positive operation of which is due to the fact that it is an integral part of the main valve, will be sent on request by the Columbian Iron Works, Chattanooga, Tenn.

## A 1,352-PAGE CATALOG

The Westinghouse General Catalog 1931-1932, comprising 1,352 pages, presents descriptions and illustrations of apparatus representative of the many products manufactured and sold by The Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. It presents complete listings of distribution apparatus, switchgear apparatus, except large oil circuit-breakers and power switchboards, lighting equipment, domestic appliances, gearing apparatus, and current-collecting devices; condensed listings of industrial motors and control apparatus, industrial heating apparatus and commercial cooking equipment; and descriptions of other products.

## PROTECTIVE COATINGS

Municipal officials interested in protective coatings for oil, gas and water pipe lines, steel tanks and other structures, should write to the General Paint Corp., San Francisco, Calif., for its catalog giving descriptions, methods of application and specifications of Biturine protective coatings.

## CATALOG ON FIRST AID

The Mine Safety Appliances Co., Pittsburgh, Pa., has just published the M-S-A First Aid Materials Catalog No. FA-2, a 36-page catalog profusely illustrated and covering the complete line of first aid materials manufactured by this company. Copies will be furnished gratis to those interested in first aid work, upon application to the company.

## INSULATION FOR HIGH-VOLTAGE CABLES

A new type of rubber insulation, known as Anoroc, which does away with corona and ozone troubles on high-voltage cables insulated with rubber compounds, has been announced by the Simplex Wire & Cable Co., 201 Devonshire St., Boston, Mass., which will send complete data on request.

## HANDLING AMMONIA GAS

Interesting literature describing the handling of anhydrous ammonia as a gas in the ammonia-chlorine treatment of water may be secured by those interested, from the National Ammonia Co., Inc., 11 Park Pl., New York.

## CORRUGATED CULVERTS

Literature telling why Toncan corrugated iron culverts cannot be damaged by freezing, unstable soils, earth pressure or the constant pounding of traffic, may be secured on request from the Toncan Culvert Mfrs. Assn., Massillon, Ohio.

## RUBBER ROAD MARKER

The Bradley rubber road marker, which is easily and quickly installed in old or new pavements and the upper surface of which is made in either white or brilliant yellow, is described in a folder which may be secured on request from the Bradley Road Marking Co., 503 Callahan Bank Bldg., Dayton, Ohio.

## TRAFFIC-LANE BUTTONS

Emco traffic-lane markers, which may be used to designate pedestrian lanes, stop lines at street intersections, bus stops, safety zones, and parking lines, or for spelling words on the pavement, are made by the Edwards Mfg. Co., Cincinnati, Ohio, which will gladly send literature describing them to municipal officials.

## TASTE AND ODOR REMOVAL FROM WATER

An 8-page bulletin entitled "The Chemical and Mechanical Utilization of Activated Carbon in Water Purification," discussing the removal of tastes and odors from municipal supplies with Hydrodarco and including drawings to show how this treatment may be accomplished in connection with old and new filter plants, may be secured from the International Filter Co., 59 E. Van Buren, Chicago, Ill.

## MIXED-REFUSE INCINERATORS

Complete information regarding the disposal of municipal garbage and rubbish through the use of mixed-refuse incinerators, may be secured without obligation from the Hiler Engineering & Construction Co., Inc., 122 Livingston St., Brooklyn, N. Y.

# TIME—THAT TOUGH OLD TESTER

Here is Time, that Tough Old Tester of everything in this world. To his aid, Time calls all the destructive forces of the universe. Years come and go, storms and sunshine, heat and cold make their accustomed rounds, while Time, the Tough Old Tester, broods over the world, trying, testing, destroying.

Yet Time, the Tough Old Tester, does have his troubles. Against one material devised by man, Time and his servingmen falter. The material is genuine Puddled Wrought Iron—the metal of which Reading 5-Point Pipe is made.

*Use only Reading 5-Point Nipples with Reading 5-Point Pipe—you'll know them by the indented spiral band*

For Your Protection, This Indented Spiral Forever Marks *All*

5 POINT PIPE READING GENUINE PUDDLED WROUGHT IRON

READING IRON COMPANY, Reading, Pennsylvania

*GENUINE* PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM ⅛ TO 24 INCHES

***Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Iron***

### CONTROL OF CHLORINATION ACCORDING TO POLLUTION

An entirely new principle in automatic control of chlorination is discussed in a paper, "Operating Experiences with a New Automatic Residual Chlorine Recorder and Controller," which has been issued as Technical Publication No. 135 by Wallace and Tiernan Co., Inc., Newark, N. J.

### A CRACK-FILLING MACHINE

The Burch Crack Filler, an entirely new device for applying hot bituminous material and chips to a crack in a road, is described completely in a circular of the Burch Corporation, Crestline, Ohio.

### CURRENT PRACTICE IN USING CALCIUM CHLORIDE FOR CURING CONCRETE

An 8-page pamphlet of particular interest to contractors and engineers, entitled "A Report on the Current Practice of Using Calcium Chloride for Curing Concrete in Pavements, Building Construction, Bridges, Culverts and Concrete Products," Bulletin No. 30-750, may be secured from the Columbia Products Co., Barberton, Ohio, which is the sales section for special products of the Columbia Chemical Division of the Pittsburgh Plate Glass Co.

### PIPE COUPLINGS AND ACCESSORIES

The S. R. Dresser Mfg. Co., Bradford, Pa., manufacturers of Dresser couplings for gas and water pipes, have prepared a very interesting illustrated booklet, "A Half Century of Progress," which they will be pleased to send to any contractors or municipal officials interested in pipe couplings.

### ELECTRIC FLOODLIGHTS FOR BUILDINGS AND PLAYGROUNDS

Catalog 312 recently issued by the Crouse-Hinds Co., Syracuse, N. Y., describes a complete line of floodlights for airports, buildings, electric fountains, general yard lighting, golf driving ranges, outdoor sports and signs, as well as for construction work. The catalog contains 56 pages and is well illustrated, showing not only the type of units but their adaptation to various uses.

### HANGARS AND AIRPORT EQUIPMENT

Catalog No. 201 issued by the International Derrick & Equipment Co., of Columbus, Ohio, describes the complete line of Ideco standardized sectional hangars with many unusual advantages, other airport buildings and airway beacon towers, radio towers, blinker towers, ceiling light and wind cone towers and field floodlight houses.

### MUNICIPAL REFUSE DISPOSAL

For facts regarding the Morse Boulger destructor plant, which provides a logical, economical method for disposing of municipal refuse, send for a helpful booklet which discusses the entire subject of municipal refuse disposal and may be secured from the Morse Boulger Destructor Co., Inc., 205-C E. 42nd St., New York.

### WARNING TORCHES FOR HIGHWAYS

Complete data regarding the Toledo torch, which is always on the job, always burning and always upright, may be secured on request from the Toledo Pressed Steel Co., Toledo, Ohio.

### STEEL HIGHWAY PRODUCTS

Truscon highway products include welded steel fabric and rib bars for reinforcement, dowel contraction joints, air-cushioned expansion joints, steel road forms, curb bars and all-steel highway guards, complete information on which may be secured on request from the Truscon Steel Co., Youngstown, Ohio.

### WATER AND GAS PIPE

Pipe manufactured in sizes from 2 to 60 inches, in accordance with standard specifications adopted and approved by waterworks associations and engineers as well as fittings and Warren short body specials, are described in literature which may be secured from the Warren Foundry & Pipe Co., Bowling Green Bldg., New York.

### PORTABLE ASPHALT PLANTS

An illustrated catalog describing the Chausse portable asphalt plant, as well as its complete line of tar kettles, mixer heaters, sand driers and torches, is available on request from the Chausse Oil Burner Co., Elkhart, Ind.

### WATER TANKS AND CASTINGS

Water tanks and towers, standpipes, plate, sheet and steel structural work, boilers, engines, white-way lamp-posts, meter boxes, park benches, sewer castings and anti-rattle manhole covers and rings, are some of the products of J. S. Schofield's Sons Co., Macon, Ga., information on which will gladly be sent on request.

### POLICE MOTORCYCLES

The Indian Motocycle Co., Dept. 8C11, Springfield, Mass., will gladly send complete information regarding Indian Motocycles and their use by police departments all over the country.

### ELEVATED WATER TANKS

Complete descriptions of Horton shallow-depth elevated water tanks, which are available in capacities up to 2,000,000 gallons or more, may be secured without obligation from the Chicago Bridge and Iron Works, 2127 Old Colony Bldg., Chicago, Ill.

### DEPENDABLE FIRE HYDRANTS

The Ludlow Valve Mfg. Co., Troy, N. Y., will gladly send to interested municipal officials complete data on Ludlow valves and fire hydrants and their use in 3,000 American cities.

### SEWER-CLEANING MACHINES

A new catalog describing the Turbine sewer machine, in which the same water used to propel the knives serves to clean and scour the sewer at the point where the knives are cutting, is available on request from the Turbine Sewer Machine Co., 5210 State St., Milwaukee, Wis.

### SELECTING STREET-LIGHTING POLES

Complete information on the right type of pole equipment for any municipal street-lighting project, whether it be business or residential street lighting, bridge lighting, floodlighting or traffic signal standards, may be secured without obligation from the Electric Railway Equipment Co., 2901 Cormany Ave., Cincinnati, Ohio.

### CAST IRON PIPE

The McWane Cast Iron Pipe Co., Birmingham, Ala., or the Pacific States Cast Iron Pipe Co., Provo, Utah, will gladly send to municipal officials complete data regarding McWane precalked joint cast iron pipe, which is made in sizes from 1¼ through 12 inches, or on sand-cast bell-and-spigot pipe without precalked joints.

### DISK WATER METERS

Phoenix disk water meters, which are especially noted for their rugged simplicity and the absence of screws, meaning fewer repairs, are made by the Phoenix Meter Corp., 50 Church St., New York, which will gladly send complete data on request.

### NORWAY MAPLES

Data and attractive prices on Norway maples in sizes up to 2-inch caliper in quantity lots for city plantings, will be sent on request by Thomas B. Meehan Co., Inc., Dresher, Pa.

### CHLORINE TESTS AND WATER ANALYSES

The new price lists Nos. 600 and 601 of Hellige-Klett, Inc., 179 East 87th St., New York, contain detailed information regarding Hellige comparators with permanent, non-fading color glass standards for hydrogen ion control chlorine tests and water analysis.

### BENCHES AND SWINGS

Millersville Supply Co., Millersville, Pa., will gladly send descriptions of Bausman Better benches and swings for parks, golf courses, tennis courts and playgrounds.

### A POWER-PROPELLED TRAFFIC LINE MARKER

McEverlast, Inc., 111 W. Seventh St., Los Angeles, Calif., will be pleased to send complete information covering its machine for applying traffic lacquer, mechanically mounted on a motorcycle. This machine is loaned to users of McEverlast traffic lacquer.

### PORTABLE ROAD ASPHALT PLANTS

The Doorley portable road asphalt plant, made in 450-, 850-, 1,500-, and 2,000-square-yard sizes, is completely described in a series of bulletins which may be secured from the Asphalt Equipment Co., Scottsdale, Pa.

### NEW DEVICE SHOWS WATER SAMPLES

A new device divided into three compartments each of which holds one cubic foot of water has been developed by the Norwood Enginering Co., Florence, Mass., for showing constantly changing samples of water from different parts of a filtration plant. This device, the Hall Comparitor, magnifies the sediment and floc in the water and serves as a check on the effectiveness of the plant operation.

### TRAFFIC LIGHTS FOR PEDESTRIANS

The Electro-Matic pedestrian crossing syaing system for use with two-color or three-color traffic signal lights is described and illustrated in a new 8-page booklet issued by the Automatic Signal Corporation, New Haven, Conn.

### A POWER EARTH BORER

The improved Young's Road Crossing Boring Machine, which bores holes up to any length for the insertion of pipes under railroad crossings, paved highways, streets, etc., is completely described in illustrated Bulletin No. 15 issued by the Young Engine Corp., Canton, Ohio.

### TRAFFIC CONTROL EQUIPMENT

Stop and go signals, reflector signs and signals, plain embossed signs, flashing beacons and equipment for every traffic need, are described in the literature of the American Gas Accumulator Co., Elizabeth, N. J.

### SCHOOL FENCES

A complete catalog of Anchor fences for school yards and playgrounds, will be sent on request to interested municipal officials, by the Anchor Post Fence Co., Eastern Ave. and Kane St., Baltimore, Md.

### CENTRIFUGAL PUMPING UNITS

Bulletin 1647 issued by the Allis-Chalmers Mfg. Co., Milwaukee, Wis., describes the type-SSU centrifugal pumping unit, in which the pump and motor are mounted on the same shaft, eliminating couplings and the need for long shafts.

### EXPELLING GAS FROM MANHOLES

Complete data regarding a quick and efficient method of overcoming the hazards of manhole work by expelling accumulations of carbon monoxide gas through the use of the Coppus Vano blower, may be secured from the Coppus Engineering Corp., Worcester, Mass.

### A NEW LOW-COST PAVEMENT

An interesting booklet, C-899, describing and illustrating the method of application of Penolithic pavement, has recently been issued by Warren Brothers Co., Boston, Mass., which will be pleased to send copies on request.

### A NEW CHAIN-LINK ROAD-GUARD

A new style of heavy-duty road-guard, made from full No. 4 gage copper bearing special quality steel wire, built upon scientific principles and woven in diamond mesh approximately 3 x 6 inches, has been put upon the market by the W. F. Robertson Steel & Iron Co., Cincinati, Ohio, and is described in a folder which is available to municipal officials.

### A NEW HIGHWAY MOWER

Literature describing the Centaur highway mower, which is especially designed and built for cutting grass and weeds along highways and is a flexible, close-coupled, durable, one-man outfit that will go and cut almost anywhere, will be sent upon request by the Centaur Tractor Corp., Greenwich, Ohio.

# GAMEWELL

## 1931 Model
## PEERLESS
## FIRE ALARM BOX

The popular QUICK-ACTION DOOR, which so many cities have standardized on, is furnished with the 1931 Model. Over 90 per cent of the fire alarm boxes sold during the past year were equipped with QUICK-ACTION DOORS. A white stripe added to the sides of the box, and a white pull-handle increase the visibility of the 1931 Model.

*SALES OFFICES:* BOSTON, NEW YORK, ATLANTA, DALLAS

# THE GAMEWELL COMPANY

DECEMBER, 1930
Vol. XLIII, No. 6

The American City

470 Fourth Avenue
New York
50 Cents, $4 a Year

# To Relieve Distress and Hasten Good Times

***An Appeal to the President and Congress for a Substantial Issue of "Employment Bonds," Drafted by an Emergency Committee for Federal Public Works, Now Being Organized***

MORE than twelve months of widespread unemployment have dragged by since the stock market crash and business recession of 1929. We now enter another year in which—unless vigorous public action prevents—millions of destitute American citizens will be unable to buy the surplus food products which other millions are eager to sell; in which there will be idle machinery in thousands of factories, while multitudes of men, women and children are suffering for the goods which that machinery could produce.

These conditions are unnecessary—tragic. Whether viewed from the humanitarian aspect, or as a threat to the stability of our institutions, the problem demands courageous thinking and prompt, constructive, nation-wide action.

*What can public officials do, in addition to emergency appropriations for relief, in such a crisis?*

In many state capitols and city halls, thanks to the efforts of President Hoover and to the action of governors, mayors and other officials, movements are under way for the speeding up of public works and other methods of stimulating employment. Wherever local conditions are acute, such movements should obviously continue with added vigor and vision. But the Federal Government has resources and facilities far exceeding those of any of its political subdivisions.

IF we were facing a great war, Congress would authorize billions of dollars of "Liberty Bonds"; everyone would begin feverishly to produce and use machinery and other resources to the utmost capacity; and the general standard of living would be materially raised. Confronted now with this great problem of peace—this "war against human misery," as it has recently been termed by Colonel Arthur Woods, Director of the President's Emergency Committee for Employment—should we not act with similar patriotism and courage? Should not the Federal Government authorize an immediate issue of "Employment Bonds"—to an ultimate total of a billion dollars or more if necessary—the proceeds to be expended for needed public works in every state of the Union?

To assume that the nation could not afford to spend a billion dollars—or several billions—in this manner would be unreasonable. To pay the interest and amortization might require a slight increase in the income tax rate; but it cannot be doubted that the financial and psychological stimulus to prosperity would so increase corporation and individual incomes as to more than offset the taxes collected by the Government to finance such a program.

WHEN it is also realized that for every month the existing business depression continues unchecked, the loss to business men, investors and wage-earners is, by conservative estimate, not less than a billion dollars—twelve thousand millions a year—it would seem to be the part of only ordinary economic intelligence to reduce this enormous waste.

Every worker employed is not only a producer and taxpayer, but, more important still, a consumer of our surplus products. Labor unemployed consumes little and helps not at all in providing for the needs of others. The expenditure suggested—whether financed by a bond issue or from current revenue—would not only substitute jobs for doles to hundreds of thousands now unemployed, but it would help retailers, farmers, railroads and business generally. And it would add to the wealth and welfare of every state in the Union by financing the construction of such permanent public assets as highways, bridges, public buildings, grade-crossing elimination, river and harbor improvements, flood prevention, reforestation, water-power development, and other needed public works.

The appropriations could, of course, be made in such a way as to permit the President to transfer to a "prosperity reserve" for future emergencies, such portions, if any, of the funds now to be authorized as may not be needed in the event of unexpectedly rapid improvement in general business conditions.

CONGRESS will meet in December. Even before adjournment for the holidays, action is possible which will bring hope and courage to millions of hungry or discouraged men, women and children throughout the United States.

We respectfully urge that such action be taken by the President and Congress on a scale worthy of a great, patriotic nation—a nation whose constitutional union exists "to establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare and secure the blessings of liberty to ourselves and our posterity."

*(For comments on the foregoing statement, please see page 5 of this issue.)*

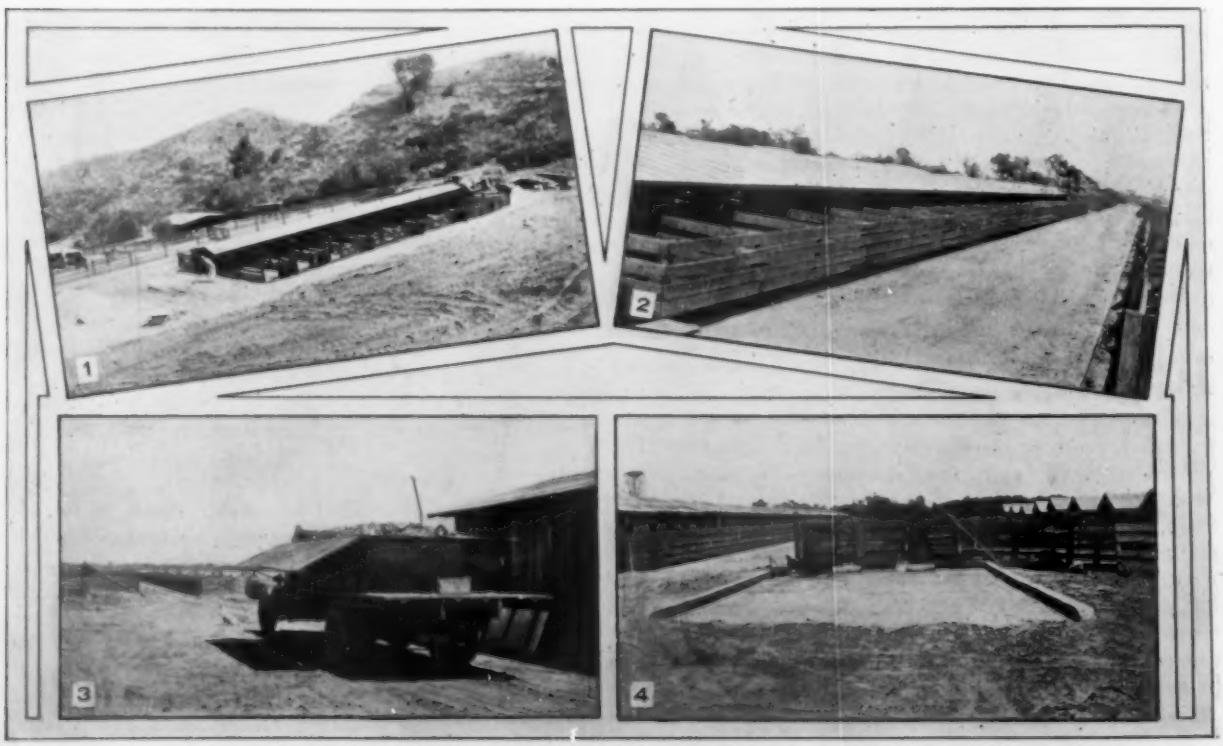
# Special Equipment and Careful Supervision in Los Angeles County Remove Objections to Garbage Disposal by Hog Feeding

*From a Survey of Municipal Garbage Disposal by Dr. L. F. Conti, Senior County Veterinarian, The Los Angeles County Live Stock Department, Los Angeles, Calif.*

THE feeding of garbage to hogs is generally conceded to be the most economical method of disposal which may be utilized by municipalities, and in many cities it has proved a source of revenue to the community. Data from 62 cities scatttered throughout the United States give an average cost of $2.94 per ton for the collection of garbage. Collection is a municipal obligation, regardless of the method of disposal. Under feeding methods of disposal, however, contractors may collect at a lower figure than the city can make for the same service, and several cities grant the right to collect to responsible feeders who make the pick-up without charge. In numerous other cities the right to collect restaurant and hotel garbage is given to responsible feeders who make the pick-up free and thereby save the city the cost of such collections. The survey also shows that an average of $1.05 per ton is paid either to the community for collected garbage or to the restaurant and hotel owners by the hog feeders. This would be a revenue to the city and cut down the cost of collection to $1.89 per ton.

### Quality of Hog-fed Pork

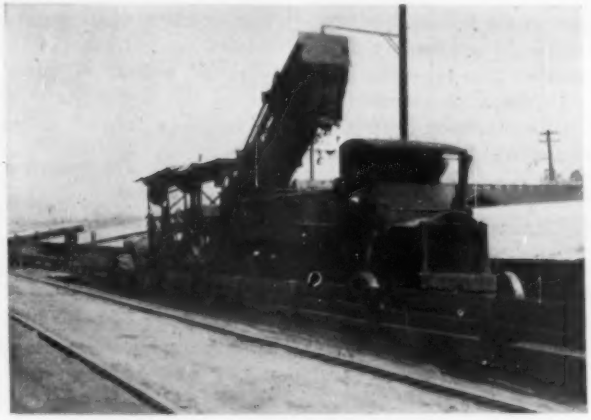
The next item that comes to the mind of the average citizen is the question whether pork produced by garbage feeding plants is fit for consumption. The United States Bureau of Animal Industry and the U. S. Food Administration have made careful studies of pork production under practically all conditions and have shown that pork is of excellent quality when garbage is fed carefully and the stock is kept under sanitary conditions. Garbage from




TYPICAL SCENES FROM LOS ANGELES COUNTY HOG RANCHES

1. A small garbage-feeding hog ranch constructed under county supervision, with equipment designed especially for this type of feeding. 2. The central alley of a 3,000-head hog ranch. Note the cement gutters along the front of the floors for drainage. 3. A type of truck used for feeding stock on a hog ranch. Note the overhanging sides used at feeding time. These sides prevent the garbage from falling into the alleys or onto the fences. 4. A concrete wash rack where garbage trucks are cleaned before they leave the hog ranch

houses and restaurants combined makes a balanced ration for hogs, and produces firm flesh because it contains the required flesh-building elements. The condition in what are known as "soft" hogs is nearly always due to the feeding of pigs with acorns or peanuts, because the animal cannot convert these soft, oily foods into hard fat. It is well known that acorn- or peanut-fed pigs up to 80 pounds weight, if placed on garbage feeding plants and fed mixed garbage from restaurants and homes, can be turned out with hard fat that is comparable to that of grain-fed pork. The conversion, then, of table scraps into pork is a considerable asset to a community, as the average ton of mixed garbage per day will feed 85 to 95 hogs. Restaurant garbage, being considerably richer, will feed from 110 to 125 head daily, according to the quality of the material collected.



SPECIAL FLOOR-CLEANING EQUIPMENT ON A LARGE CALIFORNIA HOG RANCH

The waste garbage is scraped off the floors and conveyed into trucks, which haul this material to compost pits for fertilizer or direct to orange groves

It is also important to remember that the garbage-fed hog shows less susceptibility to disease than the grain-fed animal. A report on condemnation of garbage-fed animals in one of the large eastern cities showed the loss from condemnation of meat in the abattoirs from garbage-fed animals to run less than 50 pounds in 100,000 pounds, or about 1 pound per ton. The principal difference between garbage-fed and grain-fed hogs is not in the quality of the meat, but in the yield or dressing percentage, which is slightly less in the garbage-fed.

### Los Angeles County Takes Over Control of Hog Ranches

Prior to 1924, several methods for the disposal of garbage were followed in Los Angeles County. Since none of the methods had proved satisfactory, the various communities were attempting to solve the problem by almost any procedure that could be suggested. On October 1, 1924, the County Live Stock Department took over the control of all hog ranches which were then operating as garbage-feeding plants. The disadvantages charged to the feeding of garbage to hogs were given much study. From this study of local conditions and practice along with the experience gained by working several years on large garbage-feeding plants, rules and regulations were formulated to govern the conduct of all garbage-feeding plants within the county in accordance with a uniform and definite system.

With the advantages of the hog-feeding method already known, the disadvantages were carefully analyzed. Insanitary conditions on some of the ranches were the basis for the greatest objection. The location of some of these plants, which were close to sections undergoing development, was also a source of complaint. Some of the ranchers failed to collect garbage regularly, were careless in the handling of their stock, and losses due to neglect sometimes caused these owners to fall down in the regular collection and handling of garbage. These losses were found to be due, especially in former years, to careless handling of stock, wrong feeding and failure to vaccinate, and were followed by heavy losses and abandonment of collection, with consequent loss to the city that was suddenly forced to dispose of garbage by expensive and unsatisfactory methods.

To overcome these objections, hog ranches were required to make application for a license. An agreement to construct equipment of a type satisfactory for this kind of feeding was made a requirement to secure approval of the application.

The insanitary conditions were found to be easily remedied by requiring all garbage feeders to install cement feed floors and water troughs of a design which experience had proved to be best suited for this type of feeding. The disposal of fertilizer and waste garbage was the next measure to be considered, and requirements for the handling of this material were formulated with due regard to fermentative processes, and fly breeding, which had caused numerous complaints. The rules and regulations were so made that the handling of this material as required prevented the odors and the breeding of flies. The value of this highly nitrogenous fertilizer was brought to the attention of grove and orchard owners, who were advised to make use of it.

### Ranches Moved to More Suitable Locations

Ranches which were in sections showing rapid development were given a reasonable, but limited, time to locate in sections known to be more suitable for the feeding of hogs. Several ranches, at one time the cause of many complaints, still remain in their original locations with no complaints charged against their operation since approved equipment was installed in 1925. Zoning of the county by the Regional Planning Commission is now in effect and all new ranches must first submit the proposed location to the Live Stock Department for an investigation before a permit to operate is granted. The applicant must agree to operate his plant in conformity with the county ordinance and the rules and regulations of the Live Stock Department covering garbage-feeding hog ranches.

At the present time 37 hog ranches, operating in this county, handle garbage. Each plant is equipped with feed floors and water troughs of a special type. All equipment is rat-proofed. It might seem that the cost of this type of equipment would be prohibitive, but it is only slightly higher than that of the old-fashioned inefficient type of wooden feeding floors, is far more sanitary and much easier to keep in order. The ranchers unanimously agree that it is a profitable investment. Six months after it was adopted and installed on our hog ranches, the same amount of feed carried 8,000 more hogs.

In the past year there were as many as 39 licensed hog ranches operating, with only three complaints received during the year. Two of these complaints were against one small plant which had lost a good share of its garbage supply. The owner, knowing that he was going to quit

the business, neglected to dispose of the fertilizer promptly. The third complaint was made by a property owner located some distance from another ranch to which objectionable odors were traced. Investigation revealed that the rancher had opened up a fertilizer compost heap which had been closed for some time and which for a few days gave off strong odors.

### Losses in Stock Minimized

The losses in stock through neglect have been cut down to a minimum, primarily through the fact that the building and sanitary requirements have weeded out the careless and less efficient management. Only the more intelligent ranchmen, who realize from the start that losses from neglect will bar all profit, will agree to install the proper equipment and abide by the rules and regulations for the maintenance of the plant. Regular ranch inspections which are made by veterinarians of the Department are helpful to the ranchers, as during these visits the condition of the animals is noted and advice is given on care and management. The control of infectious diseases being also a part of the Live Stock Department's work, systematic inspection has often resulted in the elimination of the disease conditions that formerly prevailed.

All of the disadvantages that once were charged to the hog-feeding method have been overcome with surprising ease, and the result has been that for the past five years none of the 44 cities in this county have used any other method than hog-feeding for the disposal of their garbage.

The results obtained in this county prompted the Department to make a survey of the capitals and larger cities in each state with a view to finding out what method or methods were being used and to what extent they were considered satisfactory. Not all of the cities answered all of the questions, some reporting that no records were available for that particular question. Several cities reported that no records were kept on the tonnage of garbage collected, others had no record of the cost of disposal, and still others submitted some data that were contradictory. It would seem that the disposal problem of a city should certainly be of sufficient importance to demand accurate accounting by the department charged with its supervision. All cities should have records showing their approximate monthly garbage tonnage, cost of collection and cost per ton for disposal. The following data are from reports from 91 cities.

### Separate Collection of Garbage and Trash

In reply to a question as to whether garbage and trash were separated for collection, 65 cities reported that garbage is placed in separate containers, and 21 collected garbage and trash from the same container. One city reported that all the material from restaurants and residences was disposed of by the owners themselves, and another city had awarded the collection from the restaurants to a private contractor, leaving the disposal of residence material to the property owners themselves.

In western cities the practice of separation of garbage and trash is general, and the survey revealed that this practice is also followed in a majority of the eastern cities. Separation makes it possible to dispose of garbage more readily to hog feeders and to handle it more easily and economically in reduction plants.

In 35 out of 37 cities which used the hog-feeding method for the disposal of all garbage, separation was mandatory, and 6 cities which used the reduction method required separation. Of the 14 cities which used incineration, 7 required separation, some of them saying that they preferred mixed material with as much combustible matter included as possible to facilitate the burning processes.

### Frequency of Collections

The majority of cities required a daily collection of garbage from restaurants, and residence garbage was shown to be picked up twice a week in most cases. When collections are made as often as this, garbage is always comparatively fresh and suitable for hog feeding. Restaurant garbage, because of the high food value, is much sought after by hog raisers, and cities that employ incineration can well afford to dispose of their restaurant garbage to hog feeders in order to lighten the burden on their incinerator plants.

Most cities have their own collection service, using city employees who are trained in this work. City control permits more satisfactory handling of complaints. However, an advantage in having collections made by private contractors who feed hogs, lies in the fact that they will make collections cheaper because of the revenue they derive from the material. The necessity of having garbage fresh for hog feeding, and the fact that the feeding value is commensurate with freshness, lend incentive to the hog feeder to make frequent collections.

### Reports on Incineration of Garbage

Thirty-two cities reported the use of incineration, 14 disposing of all of their material by this method, and 18 destroying only a portion. In the case of the 18 cities, residence waste usually of a mixed type was handled by the incinerators, while the restaurant material was in most cases handled by the hog-feeding method. Two cities reported incineration of rubbish only, all garbage being handled by hog feeding. Nine cities had been using incinerators over ten years, one for dead animals only, and 25 cities had had incinerators less than ten years.

Twenty-four cities reporting incineration costs showed an average of $1.54 per ton. One of these cities, however, was reporting on the cost of destroying rubbish alone, which naturally would be less than if garbage was being handled. Ten cities failed to report or stated that no records were available. Costs reported on incineration did not in all cases include interest and depreciation of plant and investment.

### Statistics on Reduction

Of the eight cities reporting on reduction for garbage disposal, six dispose of all garbage by this method, and two dispose of only a portion of the material, one city disposing of 40 per cent by reduction, 11 per cent by incineration, and 49 per cent by hog feeding, and the other city using reduction for two-thirds of its material, the other third going to hog feeders. Four of these cities have been using reduction plants for over five years, two for less than five years, and two cities failed to answer.

Three cities report costs averaging $3.63 per ton for disposal by reduction, one city reporting a revenue of 75 cents per ton, making a general average cost of $2.53 per ton. Four cities failed to report or had no records available. Plant interest and depreciation were not specified in these reports.

### Reports on Hog Feeding

Twelve cities reporting revenue from hog ranches for garbage showed an average of $1.05 per ton paid for this material. One other city reported receiving $100 per month, one received $600 per year, another $2,000 per month for restaurant garbage alone, another $1,000 per year and another $3,200 per year. One city reports paying hog ranches 74 cents per ton for disposal, while 18 cities report no charge to ranchers for the material and 21 cities failed to answer.

Two cities report paying a hog rancher for disposal, but do not give figures, two report that restaurant owners only receive pay for their garbage, and one reports that the city owns its own hogs. Cities which dispose of only a portion of their garbage by hog feeding select the garbage derived from restaurants for this purpose because it is more difficult to incinerate. These cities in most cases did not report any revenue from hog feeders, as the individual restaurant owners received pay or service for material they disposed of.

### Other Methods of Disposal

Six cities reported that all garbage was disposed of by dumping or filling in low spots and that this method was satisfactory under proper sanitary supervision, and eight cities reported that part of their refuse was disposed of in this manner. Of the five cities disposing of garbage by dumping in oceans or rivers, one city disposed of all refuse in this manner, while four cities used this method for only part of the city's waste.

EDITORIAL NOTE.—Copies of the complete survey may be obtained free from the Los Angeles County Live Stock Department.

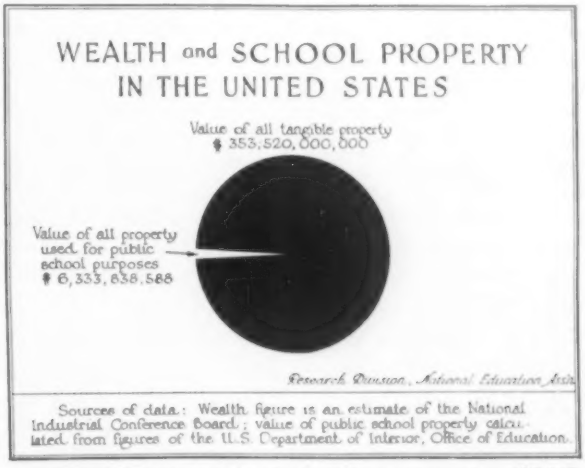
## How Much Are Our Schools Worth?

TO quell the fears of those who believe that public expenditures in general, and school costs in particular, are absorbing a too rapidly increasing portion of the national income, and to answer questions concerning the ability of the United States to pay for its schools, the Research Division of the National Education Association has prepared a report entitled "Investing in Public Education," based on the most reliable figures available. Many tables and charts are included, giving figures for the nation as a whole, for individual states and for foreign nations.

In 1928, the last year for which there are figures, the income of the people of the United States, including wages, salaries, business profits, interest on investments, etc., is estimated to have totaled $89,419,000,000. Of this income, $2,448,633,561, or 2.74 per cent, was expended for public schools, that is, for tax-supported schools of elementary, secondary and collegiate grade. For each $100 of income $2.44 was allotted for public elementary and secondary schools, and 30 cents for tax-supported colleges and universities.

Comparing the nation's total wealth in 1928—the value of its tangible property as differentiated from its income—with the value of its public school property, the Research Division find that the value of the school property was $6,333,838,588, less than 2 per cent of the total wealth, estimated at $353,520,000,000.

The nation's 1928 bill for schools, $2,448,633,561, is less than it paid for life insurance ($3,145,584), for luxuries, such as tobacco, soft drinks, ice cream, amusements, jewelry and cosmetics ($6,401,650,000), for building construction ($7,065,000,000), or for passenger automobiles ($12,500,000). And the United States spent a smaller fraction of its national income for all public purposes than did any of the other large nations of the world, although its estimated income per capita is $742 as compared with $427 for Great Britain, the nearest figure.


WEALTH and SCHOOL PROPERTY
IN THE UNITED STATES
Value of all tangible property
$ 353,520,000,000
Value of all property
used for public
school purposes
$ 6,333,838,588
Research Division, National Education Assn.
Sources of data: Wealth figure is an estimate of the National Industrial Conference Board.; value of public school property calculated from figures of the U.S. Department of Interior, Office of Education.

## No Car Will Ever Park at the Curb in This Town

ELWOOD MEAD, Commissioner of the U. S. Bureau of Reclamation, made public on November 6 the following statement with regard to the new town of Boulder City, Nev., which within a few years may have a population of 4,000:

"The town in Nevada that will house the working force that will construct Hoover Dam will be provided with a ground plan thought out in advance that will furnish ample parking space and keep idle cars entirely off the streets.

"No car will ever park at the curb in this town. There will be areas specially provided and conveniently arranged throughout the town to take care of this demand of a modern age.

"This will be the first municipality purposely planned in advance of its development to be laid out with all the exigencies of an automobile age in mind.* It will be so designed as to avoid all the inconveniences experienced in old-fashioned towns that grew of themselves in horse-and-buggy days.

"This town will be on a great transcontinental automobile highway. That highway, however, will not pass through the business street of the town and interfere with local activities, as so often happens, nor through the back yards or undesirable sections. Instead it will wind past the Government buildings, through parks and choice residence areas. The Government which owns all the land and assigns it for specific purposes will place the business section off the through road."

An office building and living quarters for Government employees will be erected. Leases will probably be granted, for terms not to exceed twenty years, to those who reside in the town or use the land for commercial purposes. Boulder City is being planned as a permanent community and it is stated that "it is the intention of the Government that the bootlegger, the gambler, or other law violator shall not interfere with the well-being of the workmen" assigned to the task of building and maintaining the dam. The power to terminate leases, and therefore residence, will be used as one of the means of enforcing proper conduct.

* EDITORIAL NOTE.—Radburn, N. J., has been called, and rightfully, the first planned "Town for the Motor Age," but it is a section of the older municipality of Fairlawn, N. J., and not a complete municipality as Boulder City will be.

OLD TYPE OF SNOW-FENCE, AND RESULTING DRIFT OFF THE ROADWAY

# Massachusetts Broadens Snow-Removal Campaign

***State Department of Public Works Hopes to Make Winter Travel Easier and Safer in the Bay State***

SO far as it is possible for human ingenuity, labor and modern machinery to make roads safe and easy to travel throughout the winter months, Massachusetts plans through its snow-removal campaign to widen the scope of snow removal to permit travel, according to Charles F. Marden, Automobile Editor of the *Boston Evening Transcript*. The snow- and ice-fighting campaign has been carefully planned, the force has been mobilized and prepared and is about to take the field and to occupy the strategic positions from which the first onslaught of winter can be successfully combated. When the first heavy snow appears, the state will be ready with men and plows to clear nearly 1,500 miles of highway and to keep it clear so that motor vehicles can travel with practically the same freedom as in midsummer. This is entirely independent of what the cities and towns will do in removing snow from their streets.

### Methods Improved Each Year

This state has had long experience in snow work, and each season provides knowledge upon which to base improvements in the system. Methods which were tried for the first time last year and found advantageous have been adopted for the coming season, and new types of machinery that gave good results have been made a part of the regular force. In the early days of snow removal the municipalities did the work, but this plan failed in large measure through lack of cooperation. In recent years the state has taken it over on all the trunk highways, and the program for the approaching winter calls for the clearing of the largest mileage that ever has been undertaken. It includes almost the entire system of state highways, the only exceptions being the roads on Martha's Vineyard and Nantucket islands, a few instances of parallel highways where only one is cleared, and several short sections where regular snowplowing is unnecessary.

A WINTER CONDITION IN WESTERN MASSACHUSETTS

### Twenty-Five Miles Added

There have been added about 25 additional miles of road to those cleared last winter. The principal additions are the road between Amherst and Chicopee, Route 116, and that part of Route 67 between North and East Brookfield. Both the main routes across the state, Route 2 by way of Greenfield and Route 20 by way of Springfield, will be cleared their entire length. Route 1 will be cleared from Providence to Newburyport, also Route 3 from the Cape Cod Canal to the New Hampshire line; Route 28 from Orleans on the Cape to the New Hampshire line, Route 6 from the tip of the Cape to Rhode Island, Route 138 from Boston to Fall River, Route 12 north and south from Worcester, Route 5 up and down the Connecticut Valley, Route 109 through the Berkshires, and Routes 7 and 8 in the western end of the state. Numerous other numbered routes all over the state are also included in the program, so that the motorist can go practically anywhere he chooses immediately after a heavy fall of snow and be sure of finding an open road. All the main connections with other adjoining states are included.

### Costs 26 Cents Per Car

Based upon the figures of last year, the work of keeping open and available the highway system of Massachusetts will cost each vehicle owner just about the tax on 13 gallons of gasoline, or 26 cents. Snow removal during the winter of 1929-30 cost the state $229,414, which figures out at $156.28 per mile cleared, or 26 cents each for the registered motor vehicles. The cost ranged from $3.69 per mile in some sections to $327 in others.

### Organization

In preparing for the annual fight with the snow, the

Maintenance Department of the State Department of Public Works has marshaled its forces very much as a commander would arrange his army for attack. Within the next few weeks thirty miles of snow-fence will be put in place along the roads, where experience has shown that the snow is likely to form in drifts. This fence, of light slats four or five feet high, serves to break the sweep of the wind and to prevent the formation of drifts in the highway.

The personnel of the snow-fighting army is headed by the State Highway Maintenance Engineer at the State House in Boston, where the campaign is planned, the equipment assigned, and from which reports of approaching storms are sent out and reports on road conditions received. There are seven district engineers, with their assistants, scattered about the state, who in summer have immediate charge of the highways and in winter look after snow removal. Under these engineers are the chauffeurs of the trucks and their helpers, who are the regular state highway maintenance force. Each chauffeur is assigned to a truck or tractor and, when a storm begins that promises to last for some time, they get their trucks on the road and keep covering the particular section of highway assigned to them until the storm is over and the road completely cleard its full width. The men are instructed to plow the snow to the surface of the road, leaving as little as possible.

### More Light Trucks to Be Used

When the snow begins to fall in such quantity as to make it apparent that it will accumulate, the Department has a fleet of light trucks equipped with plows ready to take the road. If the storm continues, there is another fleet of heavier trucks and larger plows prepared to enter the fray, and should conditions become extreme and the snowfall extraordinarily heavy, there are powerful tractors and huge plows, including one rotary, that are capable of coping with any drift. The truck plows are so efficient that it is rarely necessary to send out the tractors. Last year not more than half the tractors were put into service.

The newest feature of the snow-removal plan this season is the use of more light trucks. It used to be thought that a 3- or 5-ton truck with plow was necessary, but experiments made last year with a few light trucks showed that they were decidedly useful in making the first cut through the snow. Consequently, for the coming winter,

PATROL UNIT CONSISTING OF A TRUCK DRIVING ON ALL FOUR WHEELS AND EQUIPPED WITH A TRUCK BLADE PLOW

53 light trucks have been equipped with blade plows. These trucks will be sent out ahead and, if the snowfall is heavy, will be followed by the heavier and more powerful trucks with larger plows. It is the intention to clear the full width of all the roads that are included in the snow-removal program, and the trucks will work in tandem, a light truck in front and a heavier one behind. Each combination will cover about ten miles of highway, starting with the storm and continuing until the snow stops falling.

### New Type Plow Adopted

Usually a pair of trucks will be able to keep the road open, but for heavy work the state has trucks of 2½- to 5-ton sizes. Some of these are equipped with V-shaped plows 5 feet high, while others will this season have a new type of plow with blades 3 feet high that is expected to give excellent results in almost any depth of snow. To handle this new type of plow the Department has purchased seven additional trucks of 2½-ton capacity, which can be employed in summer in the ordinary road maintenance work. The trucks are equipped with hydraulic hoists operated from the cabs, and the newer types have a battery of electric spot lights. It is the intention to put lights on the outer end of the plow blade to prevent col-

THE MAJOR PORTION OF THE MASSACHUSETTS FLEET OF SNOW-REMOVAL UNITS

WALSH PLOW ON A 5-TON TRACTOR IN WESTERN MASSACHUSETTS

lision with other vehicles during storms and at night. In all, the Department has 120 trucks fitted for snow work and 23 tractors. Five of the tractors are of 10-ton capacity and can buck through any size drift. When at work the trucks usually travel at 10 to 12 miles an hour.

### Guard Against Ice Danger

The work of the snow-removal organization is not complete, however, when the snow stops falling and the roads are open. Then begins a new fight, that against ice. It frequently happens in midwinter that during the middle of the day the sun will cause the snow to melt a little. When night comes, the water, either from the melted snow left in the road or from the roadside, freezes. This causes a treacherous condition which has to be guarded against promptly.

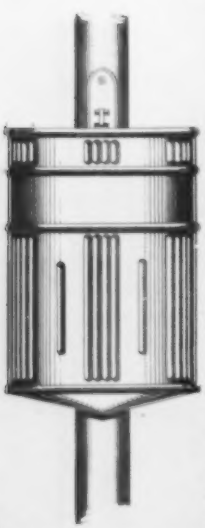
As soon as a freezing condition is apparent and ice begins to form in the roads, the Department sends out trucks loaded with sand in which calcium chloride has been mixed. Even under very cold conditions the calcium chloride causes the ice to melt sufficiently so that the sand will sink in a little and hold. The sand-calcium chloride mixture is spread with machines, which will cover a 5-foot strip of road for a mile and a quarter in a few minutes. It is rarely necessary to spread sand continuously for as much as a mile, and usually one load of sand is enough to cover the slippery spots for a distance of five miles or even more. The speed of the mechanical sand spreaders makes them especially valuable.

Under most circumstances the calcium chloride in the sand is sufficient to soften the ice, so that it is soon broken up and thrown one side by passing vehicles. But if an icy section proves particularly stubborn, it is covered with calcium chloride in large enough quantity to melt it, so that it can easily be scraped away. The Department keeps an especially watchful eye upon grades and curves and aims to remove ice as soon as it appears.

### Forewarned of Storms

The Department has made arrangements with the Weather Bureau so that it will be promptly forewarned of the approach of any serious snowstorm, and this information is relayed to the districts so that the snow-fighting force can go into action immediately. The average annual snowfall in Massachusetts ranges from 19 inches on Cape Cod to 66 inches in the Berkshires, and consequently the heaviest snow-removal machinery is located where it is most needed. Sometimes, however, the normal conditions are reversed. This happened last year when one of the hardest storms of the winter struck Cape Cod. The Department had to bring its heaviest machinery to break out the Cape roads, and one of the biggest plows became stuck. Ordinarily, however, the equipment in each district is able to take care of its needs without transfers.

## Awards Are Made in the Competition for a Street Litter Basket Design



FIRST PRIZE WINNER

JAMES HERMAN, of the Industrial Arts School, Chicago Art Institute, has been awarded first cash prize of $500 in a contest for the design of a litter basket for use in New York City. A second cash prize of $250 was awarded Denzil Hinr, of Washington University, St. Louis. The competition, conducted by the Committee of Twenty on Street and Outdoor Cleanliness of the New York Academy of Medicine, closed October 1, with a total of 196 designs submitted. The prize designs will be presented to the Department of Sanitation of New York City with recommendations that a large number of litter baskets be manufactured and placed throughout the city to serve as receptacles for small pieces of paper, fruit skins and other refuse often thrown on the pavements for want of a more suitable place to deposit them.

The litter basket competition resulted from recommendations made by Dr. George A. Soper, sanitary engineer, who, in 1929, in behalf of the Committee of Twenty, investigated the methods of street cleaning and refuse removal in several European cities. Dr. Soper found that in cities that maintained the highest standards of street cleanliness litter baskets were quite generally provided to receive small articles of refuse. The "baskets" varied greatly in design and construction in different cities. In some, they were of fine wire mesh, cylindrical in form, open at the top; in others they were of closed box type, made along the lines of the ordinary mail-box in use in this country. Baskets were attached to corner lamp-posts or to the fronts of buildings, and were found so generously provided that it was never necessary to carry refuse more than a block.

SECOND PRIZE WINNER

# Operation of the Municipal Asphalt Plant at Pittsburgh, Pa.

*By* J. B. NEALEY
American Gas Association

IN preparing asphalt for surfacing roads, steam lends itself admirably for melting, mixing and handling at the plant. In Pittsburgh, Pa., gas fuel is used under the boiler at Municipal Plant No. 2 instead of coal, in spite of the fact that the latter is available at $2.70 per ton delivered. With gas at 45 cents per 1,000 cubic feet, it has been found to be cheaper than coal. It eliminates four firemen and the necessary laborers for coal and ash handling, and the storage space for coal and ashes is available for other purposes.

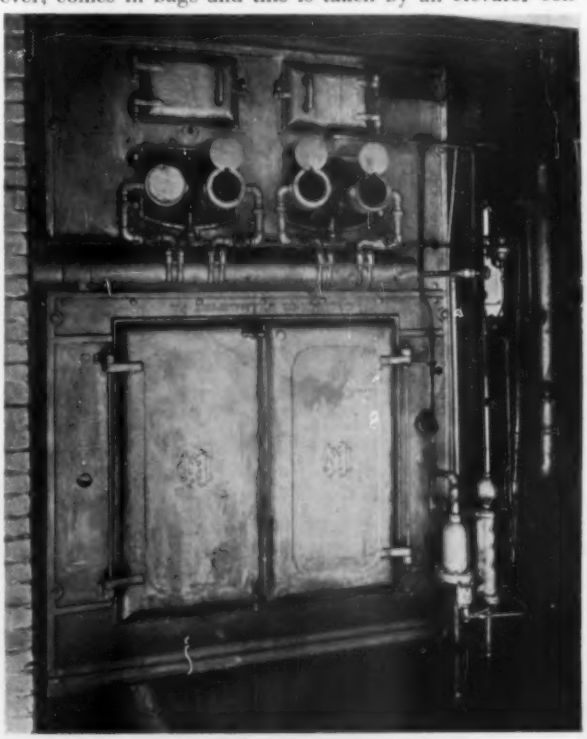
The Pittsburgh Asphalt Plant No. 2 furnishes, on an average, 150,000 square yards of 3-inch asphalt surface in eight months. This is usually composed of 1½ inches of binder consisting of asphalt, sand and slag and 1½ inches of top composed of asphalt, sand and lime. The average cost is $1.66 per square yard, including overhead and depreciation of plant, equipment, etc.

### Handling the Asphalt

Cars of asphalt are spotted on a railroad siding close to a pump-house, and a steam line is attached to the steam coils in the car and the steam admitted. It requires from six to twelve hours to soften up the asphalt. A steam-jacketed flexible hose is then attached to a bottom outlet in the car, and suction is applied with a steam pump, which draws the asphalt through the hose, through a strainer in the pump-house, and on up into the storage tanks. There are two steel storage tanks of 80 tons capacity each, and it requires only 60 minutes to unload a 40-ton car.

### Handling of Aggregate

A steam crane with a grab-bucket, operating on a parallel truck, is used to unload sand, slag, lime, etc., which is stored in piles on the opposite side. The lime dust, however, comes in bags and this is taken by an elevator con-



GAS-FIRED STEAM BOILER FROM WHICH THE ASPHALT PLANT IS OPERATED

GAS-FIRED ROTARY SAND DRYERS
Note the bucket elevators raising and charging sand into the retorts

veyor up into a storage bin holding 40 bags. In fact, all the ingredients are held in elevated storage bins and dropped by gravity directly into the mixers.

The sand is first dried in a revolving steel drum enclosed in a brick furnace. The drum, which is steam-operated, is 26 feet long and 5 feet in diameter and makes 6½ revolutions per minute. It sets at a slight angle, so that the sand works through and discharges automatically. Heat is supplied by four atmospheric gas burners, and the temperature is maintained at 500° F. with the aid of a recording pyrometer. The capacity of this dryer is 40 tons hourly. The sand discharges into a chute which protrudes through the side of the furnace wall and directs the sand into a bucket elevator. This lifts it and drops it through a screen into a storage bin. Another dryer, identical with the one described, is used for drying the stone or slag.

### Mixing the Batches

Batches of 1,500 pounds each are made up by drawing the sand, slag and lime from storage into weighing hoppers, and the asphalt into buckets holding the correct amount. These ingredients are then dropped into the mixers. The asphalt tanks are equipped with steam coils and, when ready to use, the steam is turned on and the asphalt melted, 330° F. being the flowing temperature. Compressed air from a steam-operated compressor is admitted to the tanks through pipes, and this forces the liquid asphalt out into the buckets.

The usual 1,500-pound batch for the top coat will contain 150 pounds of asphalt, 270 pounds of lime dust and 1,080 pounds of sand. There are other mixtures, but this is the one most commonly used. The sand is used out of storage as soon after coming from the dryer as possible, so as to preserve the heat, but the lime dust is dumped-in cold. These are weighed out in the weighing hopper and then dumped into the mixer with the asphalt.

There are two mixers built of steel plate about 5 feet square and 3 feet deep. They are jacketed so that steam can be admitted to keep the mixture up to temperature, about 500° F., equipped with two sets of heavy steel paddles on shafts. A 30-horsepower motor operates both. The batches are dropped into motor trucks holding about 9,000 pounds each, at a temperature range of 350° to 375° F. and are distributed within an average radius of 12 miles. From ten to twelve trucks are thus employed.

### Steam Supply

The steam supply of this plant is furnished by a steam boiler of 150 horsepower capacity, which is fired with gas burners. This installation is of the horizontal return tubular suspension boiler type, originally fired with coal. For the sake of economy, however, gas burners were later provided and gas fuel has been used ever since.

The boiler is 72 inches in diameter and 16 feet long, and it is 52 inches from the floor level to the underside of the shell. The burners are set in a fire-brick wall which blocks the fire-door opening. There are four of these burners and they are manifolded to a single header. All metal surfaces exposed to the heat are protected with a refractory material, excepting the water-lined surfaces.

As air must be admitted and premixed with the gas in a predetermined ratio for perfect and complete combustion, the fire-box is sealed airtight. The admission of air is provided for in the burners themselves through an adjustable shutter at one end of the burner mixing chamber. Gas is admitted to this mixing chamber through a series

TANK IN WHICH THE ASPHALT IS MELTED

of small perforations, and the quantity is regulated by means of three regulating control valves. In addition to the economies effected through the use of gas fuel already mentioned, it is of interest to note that in the fifteen years of service this boiler has undergone, only once has it been necessary to change the tubes.

**To Other Publications:**

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# The Development of Our Human Resources

## *A Suggested Means of Reducing Unemployment and of Transforming Our Unskilled Citizens from Community Liabilities to Community Assets*

*By* **L. R. ALDERMAN**
**Specialist in Adult Education, U. S. Office of Education, Washington, D. C.**

UNEMPLOYMENT as a serious problem in this country is comparatively new, probably because until recently we have had free public lands. From the beginning of our history until about 1912, public lands made unemployment on any large scale practically impossible. Our settlement of this great country, besides being one of the great epochs of history, provided unlimited employment in extending roads, building railroads, improving rivers, making farms, and building towns and cities.

This country is now inhabited, and there are no more public lands where a man and his family can make a living. In fact, the movement went too far, for it is claimed that thousands of families are trying to make a living on land that will not, except in unusual years, yield an adequate living to the family that tills it. Public land has had much to do in creating the optimism of the American people. No real training was necessary to succeed on public lands, if one had the hardihood and the cleverness to live under pioneer conditions; but the public land avenue of escape from competition in skill with one's fellows has been closed at a time when the machine has reached such a degree of perfection that it does, or can do, most of the work of unskilled men.

### Skilled Labor Can Cooperate with the Machine

Foreign markets have been relied upon to absorb our surplus but are lagging far behind expectation, partly because the machine knows no boundary lines and can be found wherever there is raw material and a demand for its products. Unskilled men and women are the first to be discharged when there is under-consumption, and unskilled men and women are the last to be employed when more labor is needed, because it is unskilled labor that comes into most direct competition with the machine.

By skill in this connection we do not mean merely skill in the manipulation of a machine that can be learned in a few days, weeks, or months. Always there is the new automatic machine replacing the hand-operated one. We refer to that kind of skill that comes to those who are trained sufficiently so that they can make their own readjustments.

### New Demands on Community Chests

The extent of unemployment is revealed to some degree by the demands made upon the public chest. In practically every city there is a charity fund for the relief of the poor. In former times mental and physical cripples largely constituted the group commonly known as "the poor." Today, however, there come into the offices of the community chest or welfare society an ever increasing number of those who are neither mentally nor physically crippled but who are forced out of employment by the conditions of our times. The officers of the community chest are at their wits' end to know how to deal with the physically and mentally sound individuals who ask for immediate relief. As men and women must not be allowed to starve, they are given temporary relief, sometimes as a loan and sometimes as a gift. The need of an ever enlarging fund for the unemployed is evident.

The officers of the chest or welfare agency often despair of finding a solution to their problems. To the thoughtful officers, the evils of the dole are apparent because many men and women become accustomed to asking for funds and become less confident of their own ability to make their own way. While the able-bodied man who comes to the chest may need the loan, he needs, far more, training and guidance so that his condition may not be a permanent one.

Up to the present time we have been developing our material resources. Now we must turn to developing our human resources. Our educational system has been largely for youth, partly because we were so busy and partly because of a mistaken idea that adults could not learn.

Perhaps the most important discovery of the century or even five centuries has been made by Dr. E. L. Thorndike and his associates, that adults can learn as adequately as, or more adequately than, children. By acting upon this new information so-

### The Plight of the Unskilled Laborer

***The accompanying article has special timeliness in the light of a report released by the Welfare Council of New York City on November 3 on 14,000 homeless men—about 80 per cent of them unemployed—visited in a single night last April in the Bowery district of New York.***

***Of the total, 10,348 proved to be unskilled laborers. This condition cannot be attributed to an invasion of the Bowery district by "ignorant foreigners," since of the 14,000 questioned more than 10,000 were native-born citiezns of the United States.***

***What is your city doing to educate its unskilled citizens, so that they will be ready for better jobs when good times return?***

ciety has a remedy in this time of leisure for the ills of unemployment that now confront it.

### Educating for Employment

The community chest in any city in the land can prove to itself that the best solution of the unemployment problem lies within the field of education and training. If one hundred of the worst cases that ask relief were given even a six weeks' training course in the lines they most need for employment, by teachers experienced in rehabilitation, improvement would soon be noticed. We think that almost any school system would accept the challenge of such an experiment. This experiment would demonstrate that these men and women can be brought back to self-support by training. The dole weakens; education strengthens.

In Denver, Colo., some twenty years ago, a thoughtful teacher noticed that some of her pupils were not in condition for learning. She visited their homes and found that their fathers were out of employment or that their earning power was so small that the family was in a tragic state. She brought some of these fathers to her school, found their difficulty, and through the liberality of some of her friends furnished the kind of training they needed. Eventually they found jobs or increased their earning power in the jobs which they held. Their self-respect was restored. She soon discovered that the children of these men improved in their school work. Her school was changed to meet just such problems on a larger scale, and thus the Denver Opportunity School had its beginning. Business men in Denver have cooperated strongly with the director of this school by furnishing employment to pupils trained in that school and by sending to the school certain individuals who seemed to be misfits, in order that they might be trained in the thing they could best do.

If another example is needed, it can be found in Buncombe County, N. C. Eleven years ago there were 7,000 adulte illiterates in this country. Some of them lived in the city of Asheville, many of them in crude mountain cabins throughout the county. A far-sighted woman began in small groups to teach these people to read and write. The numbers who wanted to learn increased, and she had to secure help. Finally, night schools were established throughout the county and they eventually became a part of the public school system. Now 6,000 of the 7,000 have learned to read and write so that they are really functionally literate. As a result, standards of living have been raised, disease has decreased, roads have been built, and business generally in the community has prospered. The business men in Asheville are enthusiastic about the project—not merely from a social point of view, but from the point of view of sound economics.

One or two individual cases will illustrate, we think, the remarkable value of this movement. An illiterate motorman on the street car was about to lose his place, after long years of service, because the company had installed one-man cars, and it would be necessary for the motorman to make out the reports which previously had been handled by the conductor. He could not make out the reports, because he could not read a letter or write a figure. He went immediately to the night school and worked diligently. He saved his job and is now one of the most valued employees of the company. As he himself expressed it, if it hadn't been for the opportunity to learn, he might now have been digging in the ditch, if there had been any work for ditch diggers.

Another man worked as a common laborer for a utilities company. When lay-offs came he was among the first to go. His wage was small and uncertain, and he had a growing family. For ten years he has been going to night school, mastering first the three R's, then going on with higher-grade work. Now he is a chief of a division for that company, has pride in his job, respect for himself, and confidence in the future.

Examples of how training and guidance have fitted the unskilled for steady employment are plentiful. Unskilled men and women cannot compete with the machine. They must keep ahead of it, and the only way to keep ahead is by training for the future.

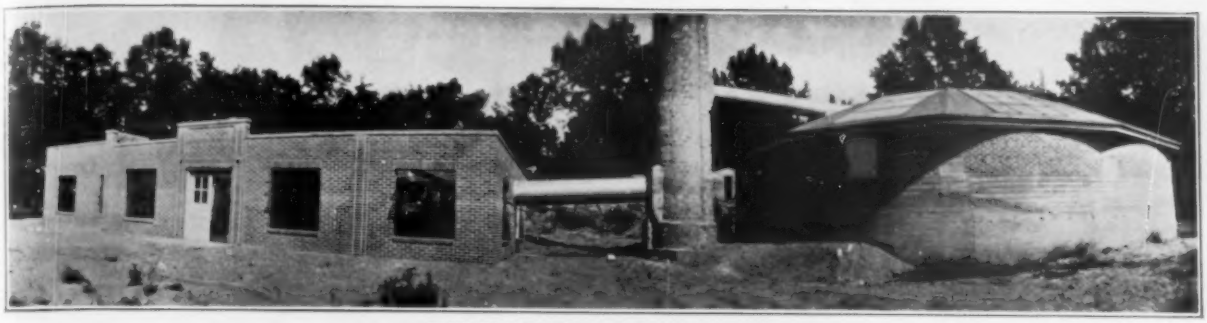
### A Campaign of Adult Education

There probably are from 15 to 20 millions of men and women in this country who cannot read well enough so that they do read. There probably are as many more men and women who have not finished even the elementary school subjects. The most of these people know little of science, little of history, little of the problems that confront the American people, except as they feel the effects of good times or bad times. They can learn and they are willing to learn. Where evening schools are opened with capable teachers, these schools are filled to overflowing.

Here, then, is a vast amount of human resource that invites development. If we were to attack the problem of the development of this greatest of all resources—our human resources—in the same spirit that we have developed our material resources, what a change would take place! The expense of such a program would be relatively small, since already there are ample school buildings, school equipment, and teacher-training institutions. With the development of these adults would come at once a new concept of child education. As these men and women increase their earnings, consumption would increase and unemployment would diminish.

Each community has within itself the cure of much of its unemployment by the offering of real educational opportunities to its men and women. A real campaign of adult education in any city will so improve the status of local labor as to enable that city to give high-grade industries much better opportunities for dividends to stockholders, and steady employment at good wages to labor, than would otherwise be the case. In other words, if the welfare agencies and the public schools will unite now in helping to educate the unemployed and those on a part-time basis, they will contribute in some measure to recovery from the present depression, but will contribute even more to business prosperity and human welfare in the years to come.

It is likely that at no time in the history of this country was the morale higher than during the World War when people of the various races and of all levels of society were asked to sacrifice and to work together for a common purpose. If even some of this spirit could be brought back and expended upon the great task of education for all, without regard to age or class, we could overcome, at least, in part, our present difficulties and be better able to attack new situations as they arise.



PUMP-HOUSE, SLUDGE BED AND FILTER

# Sewage Disposal Planned at Winona Lake, Ind., to Fit Unusual Conditions

*By* CHARLES BROSSMAN
M. Am. Soc. C. E.
Consulting Engineer,
Indianapolis, Ind.

SEVERAL years ago the town of Winona Lake was confronted with the necessity for immediate action in abating the sewage nuisance, which had become very bad. Pollution of the lake water had been evident for some time, and was a menace to the community, especially as large numbers used the lake during the summer season.

The town is located directly on Winona Lake and has become quite a residential section, being adjacent to Warsaw, Ind. It is an important summer resort and Chautauqua community, with academies which have an especially large attendance during the summer months.

The population of Winona Lake varies from a few hundred in the winter time to three or four thousand during the summer period, and with gatherings during this latter period which sometimes amount to from ten to fifteen thousand in one day, so that the sewage problem is somewhat unusual. The greater portion of the population live in the houses which are located on the low ground directly around the lake and on McDonald's Island, the average height, especially on McDonald's Island, being only a few feet above lake level.

At first, the town was partly sewered and was served with a very large assortment of small septic tanks of various sizes and designs, some of these being connected with vitrified tile and some with farm tile. Practically all the smaller septic tanks were without filters, so that only a preliminary treatment of very doubtful character was obtained. The imposing of a sewage plant upon a community of this size, with mostly a summer residence population, made it especially important that the financial side of the question be very carefully considered.

### Town Board Tackles the Problem

The higher portion of the town, which is on a hill back from the lake, was sewered mainly into an old septic tank with no filtration. The tank was not giving results and was in very bad shape. With this situation, and the necessity for improving conditions around the lake, the Town Board proceeded to take steps to remedy them. The town was indeed fortunate in having a Board of such caliber, who looked at the matter in a broadminded way and who realized that something must be done in the best possible manner to give the town relief.

The firm of Chas. Brossman, engineers, of Indianapolis, was employed to make a preliminary estimate and then final plans and specifications for a complete sewer system, tying-in with what was safe in the old system, and also to design and supervise the construction of a complete sewage disposal plant.

Previous to this, a scheme had been considered providing for the pumping of the sewage from McDonald's Island and the lower points, and then a second pumping to a disposal plant situated quite a little distance away from the town. On account of the double pumping and a higher cost of construction than was thought possible, this method was not used.

### The New Sewers

The new plant contemplated only one pumping from the lower portion, and the placing of the new disposal plant directly adjacent to the old septic tank, right at the edge of the dwellings, and only fifty feet back from the street. This location was selected because of the possibility of utilizing the old sewers and the use of the old septic tank as a sludge digestion chamber, and the fact that the plant would be centrally located for any new sewers, and adjacent to a small creek of water for the outfall. The new settling tanks were placed at a slightly lower elevation than the old one, all of the sewage from the southeast portion of the town flowing by gravity into the plant. The sewer lines along one street, Ludlow Avenue, were rebuilt and the flow reversed from its old direction, so that it also could flow by gravity to the disposal plant. This was also done with the schoolhouse flow, which was diverted to flow by gravity to the plant. All the remaining portions in the northeast part of town were at too low an elevation to run to the disposal plant by gravity. These were brought down to the west, and then connected into an interceptor sewer, running along the entire lake front,

LAYING THE NEW SEWERS AT WINONA LAKE
1. Pouring a Weston joint. 2. Handling trench water with sand points

flowing to the new disposal plant.

The entire sewer system on McDonald's Island and the business portion along the lake were taken care of by this main interceptor. The McDonald's Island sewer was run under the lagoon by gravity to the main interceptor without pumping. All of this sewage from McDonald's Island in the north part of the lake, and also the later sewage in the south portion, were brought by gravity to the disposal plant site to a pumping-station, the portion from this low part then being pumped up to the settling tank, where it joined the other sewage which came down by gravity from the rest of the town. From the settling tank on, everything flows by gravity through the rest of the plant.

Sewers and connections were provided for all residences and buildings throughout McDonald's Island, and the low districts were so sewered that no sewage was allowed to go into the lake and everything passed through the disposal plant. Necessarily, some portions had a very flat grade, and at these points flush tanks were furnished.

Work on the new sewer lines covered approximately 24,000 lineal feet, including 92 manholes and 6 flush tanks. It can readily be seen that with the ground only 2 feet above the lake level, and sections of the sewers 10 or 12 feet below ground, careful consideration had to be given to the ground-water leakage. On the rest of the ground, which was higher, the question of ground-water leakage was not a problem.

### Screening of Raw Sewage

The incoming sewage from the low part of town comes into a sump and passes through a bar screen before going to the pumps. This screen is set on an angle of about 30° and for cleaning is raised by a windlass to a height a little above level. The screenings are raked over and shoveled into a small electric bucket hoist which is raised up to the level of the sludge bed. These rakings are dumped directly onto the bed.

### Sewage-Disposal Plant

The sewage-disposal plant being necessarily designed on the basis of water consumption, with some allowance for ground-water leakage, the matter of water consumption was carefully investigated. No previous investigation seemed to have been made on water consumption for this community, and figures had to be compiled based on what was being used and what was estimated to take place at the largest gathering that might occur during the summer months. The greatest actual water consumption is estimated at 200,000 gallons per day for the largest gathering, but the plant will actually handle almost 300,000 gallons, based on a 6-hour flow through the tanks. The maximum amount of water estimated to be used ordinarily per day was 90,000 gallons.

The estimated sewage flow, using twice the maximum water flow per day, was 180,000 gallons. It was therefore estimated that with the assumed large transient meetings held for one day's period, such as the Dunkard Meeting, when there were 15,000 people on the ground, the sewage flow would equal 180,000 gallons. The plant could handle this amount of water, if necessary, right along, and could pass at times, over reasonable periods, 250,000 gallons per day. On this basis, the settling tanks would have a capacity of from six to eight hours' flow, and on the low period of operation, twelve hours and over for flowing period. From the above it will be noted that the tanks will take care of 15,000 population, using 15 gallons per capita, with 8 hours' flow.

### The Sprinkling Filter

A stone sprinkling filter was provided for sewage after passing through the settling tanks, and this is dosed by an automatic syphon having a draw of 15 inches. The filter has an average depth of 7 feet 6 inches. It is circular, 60 feet in diameter, and entirely covered. The base is of concrete and the upper portion of brick, having steel trusses supporting a composition roof, with a large percentage of the area corrugated glass. The sewage is distributed by a rotary Adams distributor, the dosing apparatus being carried to pass two-and-a-half times the dry-weather flow.

After passing through the filter, the sewage flows through a humus settling tank, this being a double hopper-

bottomed tank, 30 feet long, 10 feet wide and 6 feet effective depth. Before entering this tank, the sewage is chlorinated, and after passing through the tank, the effluent is run to a small creek which discharges into the lake. The apparatus for chlorinating the effluent has a capacity of 50 pounds per day.

### Buildings

Buildings of a permanent character were provided over the entire plant. The settling tank was made with two hoppers, and is approximately 75 feet long and 20 feet wide, with 8 feet average effective depth, with the hoppers extending below this. The tank stands on a low hill at the end of the gravity line from the old sewers, and is covered by a neat brick structure.

The dosing chamber is also under cover, and was placed at the end of the tank. The filter was placed in the rear of the pumping-station and sludge beds.

The pumping-station and the sludge beds are also housed by one brick building, the sludge beds having a corrugated glass roof. In one corner of the sludge bed was placed an incinerator for burning the dried sludge, as it was thought that this sludge could not be sold. However, since the plant was placed in operation, practically all of it has been sold to farmers for fifty cents per load.

### Sludge Storage

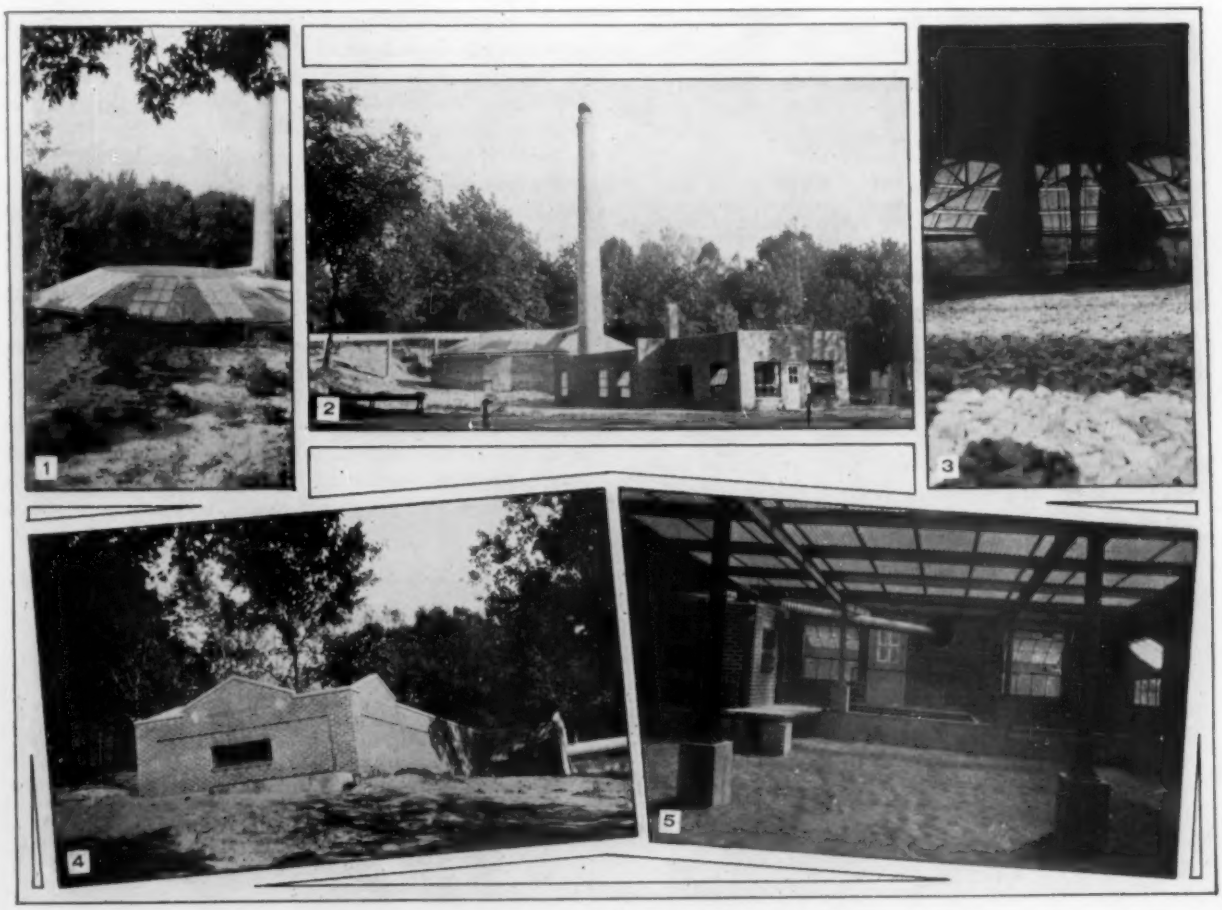
Sludge storage is provided by two hoppers in the settling basin, having a capacity of 1,200 cubic feet. The old septic tank, holding 2,400 cubic feet, has also been ultilized for sludge digestion. This gives a total sludge retention of 3,600 feet. The sludge drying bed itself has an area of 30 x 30 feet.

For handling sludge, pipe lines have been run from the settling tank on the hill and connected to the pumps through a manifold. The sludge is then pumped back to the storage tank on the hill, which was formerly the old septic tank. Through the manifolds and the valves, sludge is also drawn from the old settling tank and pumped to the sludge bed. All the sludge pipes are 6 inches in diameter and of cast iron, and no trouble has ever been experienced from clogging due to the pipes or the pumps.

At the bottom of the humus tank (beyond the filter) in each hopper bottom is placed a 4-inch sludge line which goes down to the sump supplying the pumps, so that this sludge is again mixed with the incoming sewage and pumped up to the settling tank. With this arrangement of piping, the operator can control all of the sludge at different points, by simply opening valves or using pumps as necessary. The sludge can be taken from the settling tank to the sludge bed direct from the pump through the sludge digestion tank, or taken from the sludge digestion tank to the sludge bed direct.

### Ventilation

On account of the close proximity of dwellings, it was



THE WINONA LAKE SEWAGE TREATMENT PLANT

1. Exterior of the rotary filter. 2. The disposal plant. 3. Interior of the rotary filter. 4. Outside of the settling tank. 5. Interior of the sludge drying bed, showing the sludge incinerator

necessary to have no nuisance. A small stack of radial brick 70 feet high and 30 inches in diameter was therefore placed between the pumping-station and the filters. Leading to this stack from all the buildings, corrugated galvanized iron ducts were connected. A rotary type ventilator was placed on the top of the stack so as to afford ventilation throughout the entire plant.

### Pumping Equipment

The pumping equipment of the plant consists of two 6-inch double-suction, bronze-fitted Dean Hill volute pumps with special open type impellers designed to pump sewage. Each pump is capable of delivering 350 gallons of sewage per minute against a total head of 32 feet, when operating at 860 r.p.m. The pumps are driven by a General Electric type FTR 10-hp., 220-volt, 3-phase, 60-cycle motor with automatic control and push-button station. There is also a General Electric float switch operated with float and chain. The float is installed in an 8-inch stilling pipe 12 feet long. The two pumps are so arranged that the second pump will cut in as soon as the sewage flow increases beyond the 350-gallon capacity of the first pump.

In addition to these two pumps, there is one duplex drive unit of 350 g.p.m. consisting of a pump and motor similar to the other pumps, having float switch, push-button control, and automatic starter, and on the opposite end of this pump there is placed a four-cylinder 3¼ x 4½ Model "Z" Waukesha gasoline engine connected with a flexible pin coupling. This unit is complete with radiator, cooling system, gas tank, electric starter and generator storage battery, and all necessary accessories, and provides for emergency control, as it is very necessary that in the event the power is down, the sewage from the low part of town can be handled without clogging the system.

### The Laying of Sewers

The laying of sewers with the large amount of water to be handled was somewhat of a problem. While the amount of sewage to be handled in the plant is not large, the largest sewer being only 12 inches, the conditions of laying this sewer were especially bad.

There is approximately ten feet of water over the sewer lines along the low ground. In excavating, breaking through the lower part of the trench in portions, the water gushed out in great springs, so that well points were driven, diaphragm pumps were used along the line of trench, and the flow was kept down to one-half the diameter of the sewers, the rest of this water flowing down to the end of the sewers near the pump-house, where another pump was installed for taking care of the flow. In this manner the water was successfully handled.

On account of the excess water and head, the first 1,523 feet of line was built of Universal cast iron pipe, bolted together, with machined joints. The next section of 10-inch pipe on the low ground, amounting to 2,392 feet, was also made of Universal cast iron pipe with machined joints. From this joint on, beyond where the worst water conditions were encountered, a cement joint using the Weston joint was utilized. This consisted of a galvanized form slipped around the vitrified tile. First, a galvanized gasket was placed, and then a cement grout was poured into the joint through a large galvanized funnel, the cement being worked around the joint with a small hose and plunger. After the pouring, the galvanized forms were left in place until the joints hardened, and later the top half of the galvanized form was removed. This type of joint gives excellent results, and made a good job. Illustrations are here given showing the method of using one of these joints, also other illustrations showing the various portions of the plant.

### Costs

The total cost of the system was $101,881.70, and in this was included the disposal plant, costing $45,560. The financing of the entire project was carried through by assessments against property owners under the Barrett Law system.

This plant, situated as it is, in the center of a town, has been in operation and giving very satisfactory results for the past two years, and no further complaint has been had regarding the sewage.

The contractors who built the plant were J. W. and W. C. Martin, of Indianapolis. J. W. Stearns was engineer in charge of construction, and Dean Brossman was assistant engineer.

### Operating Costs

In the expense of operation, the greatest amount is due to pumpage. During the entire year 1929, the plant used an average total of 720 kwh. per month. The total cost for current averaged $37.44 per month, a total for the year of $449.29.

In explanation of the above, there were two months in which almost double the ordinary amount of current was used, on account of excessive high water during a storm in which a large amount of water flowed into the manholes and was pumped into the plant. Under normal conditions, the current and its cost would be possibly 15 per cent less than the above.

Were it not for the topographical conditions, which make pumping necessary, the cost of operation of this plant would be merely nominal, and practically no expense to the town.

The plant is operated by F. C. Edington, who is Town Marshal, and who handles it in addition to his other duties. The City Health Officer, Dr. G. H. Van Dyke, also has this plant under his personal observation, and costs of operation are kept by Mrs. Elizabeth Collison, City Clerk. The Town Board, Chas. M. Woods, John Motto and Peter Lochner, are greatly interested in the plant and very proud of it. Since its completion, the grounds have been made more attractive, so that to the layman there is hardly a suggestion in its appearance that it is a sewage disposal plant.

### Bossism and City Charters

*What we need in all our great cities is a simplification of charters, the abolition of needless statutory checks, the concentration of power, and the development of authoritative, responsible leadership. Charters should be framed on the principle that every man whom the people elect to public office will do right if he gets a fair chance and if he knows that the responsibility for a failure to do right cannot be evaded. Power is never dangerous when full responsibility is yoked to it. The most capable men in every community are quite willing to take one with the other, and most of them have no craving for public office when it offers them neither.*

*The remedy for bossism? A simplified form of government, the short ballot, longer terms for elective officers, concentration of authority—and consign the doctrine of checks and balances to the junk-heap of politics.*

—WILLIAM B. MUNRO.

# City Pavement Research by the American Road Builders' Association

*By* C. R. THOMAS
**Engineer Executive, City Officials' Division, American Road Builders' Association**

TWO years ago the American Road Builders' Association organized a City Officials' Division for the purpose of research in the financing, construction, maintenance, administration and use of city pavements, and to promote closer relations between city officials in charge of paving work, with a view to establishing uniform standards in finance, construction, maintenance and operation of city pavements. Other important works of the City Officials' Division are those of bringing about a proper coordination between state, county and city in the financing, planning and operation of roads and streets, and to promote adequate legislation affecting city street and highway development.

## Committee Activities

The work of the City Officials' Division is carried on by four major committees: administration, organization and finance; design and construction; maintenance; and traffic. These committees are further divided into subcommittees as follows:

1. *Administration, Organization and Finance.*—Assessment and finance are studied to correct the inequitable distribution of taxes for highway improvement.

2. *Design and Construction.*—The work of this committee is organized in four divisions: (1) to determine the best methods of construction for all types of city pavements; (2) to study methods of street-railway paving for the purpose of standardization; (3) to devise methods of simplification and standardization of specifications to keep pace with standardization of materials; (4) to make an extensive study of pavement bases with a view to simplifying design and eliminating waste.

A SEPARATED GRADE CROSSING ON TELEGRAPH ROAD IN DEARBORN, WAYNE COUNTY, MICH.

WINTER POTHOLE PATCHING OF MACADAM ROADS, SHOWING CLEANING, DRYING WITH BRUSH AND TORCH AND PRIMING WITH CUT-BACK ASPHALT PREPARATORY TO PLACING A COLD ASPHALTIC PATCH

3. *Maintenance.*—The maintenance studies are made under five divisions: (1) surfaces of all types; (2) comparison of practices in making openings in pavements and recommendations for standardization; (3) street cleaning from the standpoint of economy, equipment and uniformity of methods; (4) salvaging and resurfacing existing pavements from an economy standpoint; (5) low-cost surfacing of streets.

4. *Traffic.*—Properly to study traffic, the work is organized in five parts: (1) cost of accidents; (2) signals and signs; (3) weights and loads; (4) traffic law enforcement; (5) street widths to meet traffic requirements. A special study of street capacities is also now in progress.

The plan of operation for committee studies is based on the collection of facts by staff engineers employed by the American Road Builders' Association, who annually travel thousands of miles collecting information for use of the committees, and the results of extensive questionnaires to collect facts about the subjects studied. The information collected is submitted to the chairman of each committee, who prepares a report with tentative conclusions. This report is mailed to the members of each committee, who attach thereto their comment. The report is then briefed, the comments of committee members attached, and in this form presented to the proper section of the Annual Convention of the American Road Builders' Association, usually held in January, for discussion. The entire report with conclusions, recommendations and discussion is printed in the Proceedings, which appear in May each year. The reports of the City Division occupied 270 pages in the 1930 Proceedings.

## Standardization

Standardization is effected not only by agreement among

officials, but also through the work of staff engineers. Take the case of the investigation on standardization of weighing devices for concrete aggregates. It was found by manufacturers that equipment that was of use in one state was frequently of little value in another state because of variation in specifications of the different states. This condition was so aggravated that the Association undertook to straighten out the difficulty. A staff engineer was assigned to the work and visited the different manufacturers to find out what their particular troubles were. Information as to difficulties was correlated and a committee was appointed composed of state highway engineers and manufacturers. The committee met and tentatively outlined the specifications for equipment that had been used in other states. The equipment manufacturers were called in and their criticism as to the specifications was obtained. The final specifications were presented as a report at the Annual Convention in Atlantic City, and a joint meeting was held with a committee appointed by the American Association of State Highway Officials. During the past year these specifications have been adopted verbatim by many state highway departments, and the difficulty that manufacturers repeatedly had experienced in having equipment disapproved by various states has been eliminated. Distributors have not been required to carry such a long list of parts, and manufacturers have been relieved of the necessity of making so many different kinds of machines.

### Methods of Purchasing

Consider another case of the study made of the purchasing of equipment by state highway departments. Realizing the wide variation in methods of purchasing equipment used by the different states and counties, the Association undertook to standardize in so far as possible the procedure used in buying. As the easiest part of a task, a questionnaire was sent to various state highway departments, and replies were received from 47 states. An analysis of the replies was made by the Association and the United States Bureau of Standards and a final report submitted at the Annual Convention, which recommended the procedure most desirable for states to follow in buying equipment and materials. Recommendations were made as to trade-ins, the establishment of a central agency, the type of letting to be used, and the rates to give different factors in determining to whom the contract shall be awarded. As a result of this study, a uniform practice in buying has been set up among the state highway departments for the first time in history. It is proposed to extend these studies to the purchase of equipment by counties and cities.

PLACING COLD ASPHALTIC MIXED PATCHES FOLLOWING THE PREPARATION SHOWN IN THE PRECEDING ILLUSTRATION

### Value of the Road Show to City Officials

The American Road Builders' Association is engaged in the extension of road and street programs and in research for the purpose of eliminating waste, reducing costs, and effecting standardization in road and street work. Each year the Association holds a Convention and Road Show that has become the largest and most diversified gathering of state, county, and city road and street officials, contractors and manufacturers held in the United States. This Annual Convention and Road Show covers the entire field of road and pavement work and has attracted the attention of foreign countries because of the many new methods and machines developed largely through the stimulation produced by this annual event.

The 28th Annual Convention and Road Show will be held in St. Louis, January 12 to 16, 1931. An attendance of more than 25,000 is expected.

The work of the City Officials' Division has attracted the efforts of city officials throughout the country. Both large and small cities are well represented on the directorate and committees. The President for 1930 is C. E. Myers, Director of Transit for Philadelphia, who is also Chairman of the Highway Division of the American Society of Civil Engineers. Other officers and directors come from all parts of the United States.

### Other Services of the A. R. B. A.

The facilities of the American Road Builders' Association are available without cost to all officials. This Association occupies part of the ninth floor of the National Press Building, Washington, D. C., located at 14th and F Streets, N. W., one block east of the U. S. Treasury. A personal call at the office is the most satisfactory way of obtaining the assistance of the research and information staff of the Association.

A letter to the headquarters office asking for specific information will be referred to the members of the research staff best qualified to answer and the information desired sent to you either direct or through the proper government or trade bureau that has the best information.

Staff men are traveling continually on the various research projects in progress, delivering talks before associations and engineering colleges, and calling upon manufacturers. Upon request, it is possible sometimes to schedule the routes of these men so they can call to see you, bringing the information requested.

Attendance at the annual Convention and Road Show is perhaps the most interesting and instructive way to acquire up-to-date and useful information about equipment, methods and materials of street construction, maintenance and operation. Many special services are available to members of the Association who attend the Convention and Road Show.

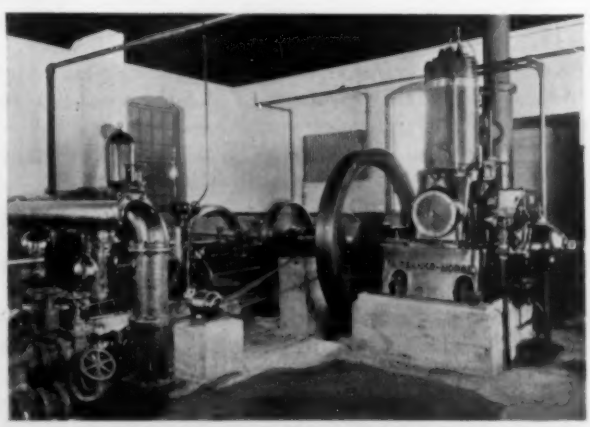
***Statistics and Feature Articles on Street and Road Construction and Maintenance Appear in the 1930 Municipal Index***

# Opportunities for Improving Water-Works Economy

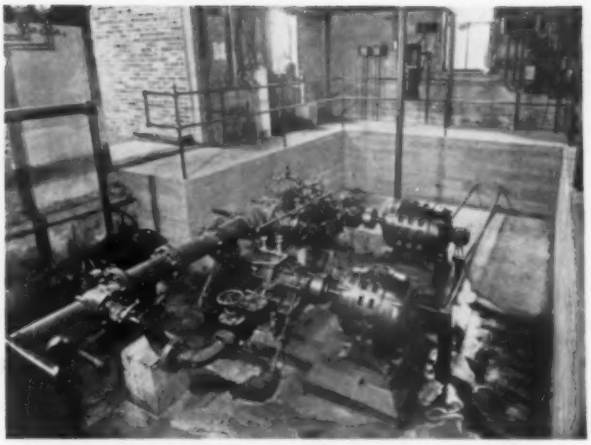
***Many and Varied Are the Designs of Modern Water-Works Systems and in Considering Methods of Improving Service Each Installation Must Be Engineered on Its Own Merits***

OF all the problems that confront the council of any municipality, probably the most important from the standpoint of health and well-being of a community is that of providing for an adequate supply of pure water. The difference between a good and a poor water-supply means the difference between health and sickness in a community and often the difference even between life and death. Hence, in dealing with these problems the question of cost should be given secondary consideration, as it is in all civilized communities.

Being of such vital importance to the community, about 99 per cent of the water-works systems of this country are under the direct jurisdiction of the municipality which they serve. But this is no reason why the undertaking should not be conducted on just as businesslike a basis as any other utility, either publicly or privately owned. It can and should be made to pay its way and provide sufficient funds to meet all necessary additions and improvements.



A 60-HP. DIESEL ENGINE DIRECT-CONNECTED TO A DUPLEX OUTSIDE, CENTER-PACKED PUMP IN THE WATER-WORKS OF PEPPERELL, MASS.



TWO MOTOR-DRIVEN PUMPS AT SOUTH WHITLEY, IND., OPERATE IN CONNECTION WITH THE MUNICIPAL LIGHT AND POWER PLANTS

### A Water-Works Must Pay Its Way

In the best interests of every one concerned, the water-works department must be administered with the same economy as if it had to pay stockholders' dividends, and its rate must be so adjusted as to meet all operating expenses as well as to provide a suitable margin for improvements. As a utility, a water-works system is in a class with the sewage disposal system; whereas the latter is expected to show a deficit and is supported by taxation, the former should stand on its own feet. By the same token, water-works improvements should be considered not as just so much expense, but as an investment which will return actual cash dividends and improved service to both the stockholders and the customers, who are one.

It may be taken as axiomatic that no matter how well situated or how well favored by nature or how competently administered the community may be, it cannot grow and prosper without ample water-supply facilities. Water is the one common requirement of all industries and they locate habitually where the supply best suits their requirements. Without water any town is handicapped in attracting industry to itself.

### Local Conditions Govern Choice of System

Sources of supply, methods of distribution and types of equipment used are many and varied, and each has its place in the scheme of things. In attempting to determine what type of layout would best serve any community, all local conditions must be taken into consideration and each case decided on its own merits. In some cases surface water from nearby streams or lakes may be most profitably utilized, in others subterranean waters offer the best solution of the problem. The question with which we are concerned here, namely, pumping equipment, depends to some extent on these other factors, but a consideration of some of the arrangements is in order.

### Prime Movers for Pumps

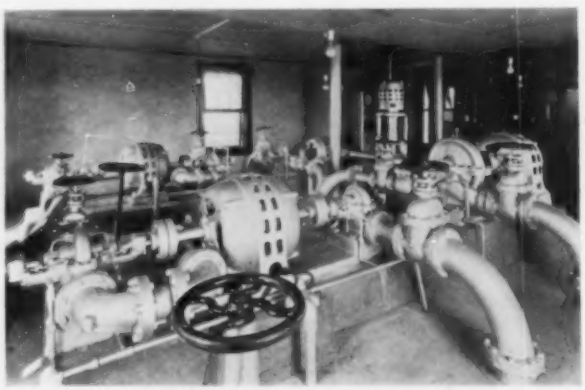
Where pumping is required, as is almost universally the case, there are two types of pumps which may be used —the reciprocating and the centrifugal. These may be driven by steam engines, steam turbines, electric motors and diesel or gasoline engines.

Because of the comparative inefficiency of small-size

steam units, this type of drive will not ordinarily be found except in large metropolitan stations. The old vertical tandem-compound, heavy-duty, reciprocating pumping units are now practically a thing of the past. In some cases they are still operating, but in most instances they have been superseded by more economical steam-turbine installations. This type of plant may be found in some of our larger cities where full advantage may be taken of the comparatively high efficiency of steam apparatus in very large capacities.

### Electric Power

In some cases, however, even very large capacity stations have been changed over from steam- to motor-driven centrifugal units to advantage. Such was the case at the Torresdale station in Philadelphia, where obsolete steam equipment was replaced by a battery of motor-driven centrifugal pumps having a total capacity of 336,000,000 gallons a day. There are six of these units, each consisting of a 36-inch Fairbanks-Morse centrifugal pump direct-connected to a 600-hp. Fairbanks-Morse motor. While the head at this plant is low, which accounts for the comparatively small horsepower requirements for the quantity of water handled, the improved economy has attracted the attention of water-works engineers throughout the country. One of the biggest savings in this plant is in the labor item. With the steam equipment there were times when more than fifty men were engaged in operating the plant, whereas with the new electrical equipment only seven are required. The total saving amounts to at least $15,000 a year over the old installation.



FOUR MOTOR-DRIVEN CENTRIFUGAL PUMPS AT MIDLAND, TEXAS, ARE LAID OUT TO PROVIDE FOR WIDELY FLUCTUATING DEMANDS

### Use of Diesel Motors

Where smaller units are required, other sources of power have in general been found more economical. Because of the exceedingly high thermal efficiency of the modern diesel engine, which comes near to being almost twice as great as that of even the most efficient steam equipment, this type of prime mover is finding an ever increasing field of application in water-works plants. In addition to this advantage, the diesel engine station requires less labor and supervision than the steam plant, and these factors, coupled with the low maintenance and repair costs as well as the low obsolescence charge, have caused the general acceptance of this type of drive for even comparatively large installations.

### Examples of Diesel Installations

Any number of examples are available which indicate that a change to diesel power has resulted in marked savings. Fayetteville, Ark., for instance, is an example of what saving can be effected by substituting a diesel engine drive for a motor drive. In this case the cost of current was comparatively high and the Water-Works Department decided to install its own prime mover to relieve the situation and to improve the reliability of the service. Accordingly, a 150-hp. diesel engine was direct-connected to the triplex pump then in service, and the cost of pumping immediately dropped to less than 1½ cents per 1,000 gallons, and by virtue of this change the city was able to show a saving of approximately $14,000 a year.

Pepperell, Mass., is another example. This municipality in the spring of 1929 was operating two vertical triplex pumps direct-connected to two 30-hp., 4-cycle oil engines. This equipment was in need of repair and it became necessary to install new units. After a careful investigation of the various types of equipment available, the city installed a 60-hp. diesel connected through a clutch to a duplex double-acting, outside, center-packed power pump. This unit operates against a head of 291 feet and has a capacity of 600 g.p.m. Records of the operation of this unit indicate that the cost of the operation amounts to $6.92 per million gallons of water pumped, with fuel at 7½ cents per gallon delivered. The savings thus effected are sufficient to pay for the installation in a very short time, and the superintendent of the water-works is naturally highly pleased with the results obtained.

Up to this point only reciprocating pumps have been considered in the small sizes. Because of the wide range of characteristics obtainable in the centrifugal pump, this type of equipment is finding an ever increasing field of usefulness for all pumping services. In addition, the installation is more compact and the maintenance is greatly simplified.

Midland, Texas, offers a good example of the wide range of service which can be handled economically with comparatively small motor-driven centrifugal pumps. Before the discovery of oil in the vicinity of Midland the town was being supplied with water from a number of small wells by means of an airlift system and a booster pump to an elevated reservoir. With the rapid growth of population caused by the oil boom, the existing system was found to be entirely inadequate and the whole layout was revised. Additional wells were drilled and fitted with deep-well turbine pumps. A one-million-gallon concrete storage tank and settling basin was constructed and larger mains were installed. The main pumping-station now consists of: two F-M 500-g.p.m., 100-foot head, deep-well turbine pumps, driven by 15-hp. motors; one 400-g.p.m., 180-foot head, F-M centrifugal pump, driven by a 30-hp., 3,600-r.p.m. motor; one 5-in., 750-g.p.m. centrifugal pump, driven by a 75-hp. motor operating under a head of 260 feet; two booster units each consisting of two 4-in., 500-g.p.m. centrifugal pumps, driven by 60-hp. F-M motors.

The piping is so arranged that the units can be operated in parallel or in series as the occasion demands. The system is extremely flexible in operation and has been designed to meet the varying requirements of the rapidly growing population at a maximum of efficiency and with a minimum of additional equipment. Since this equipment was installed, there have been two rate reductions

totaling 41 per cent.

### A Diesel-driven Centrifugal Installation

A typical example of diesel engine application to centrifugal pumping equipment may be found in the water-works plant at Santa Cruz, Calif. This town has a normal population of about 17,000, but during the summer it is increased to 75,000 because of the tourist population. The plant obtains a part of its water from several reservoirs located in the adjacent hills, but during the summer it is necessary to pump from the nearby river. Because of this situation the pumps are separated and it was thought advisable to install motor-driven centrifugal units, energy for which was derived from two 360-hp. diesel engine generating sets in the pumping-station. The normal capacity of this station is three million gallons a day, and all the equipment is installed in duplicate to insure the utmost in reliability. Pumping costs, as determined by accurately kept records, average $7 per million gallons.

Yet another type of installation that has proved very satisfactory consists of a centifugal pump connected through turbo gears to a diesel engine. Such a plant may be found at Sanford, Fla. This plant contains four 2,100-g.p.m. centrifugal pumps operating against a total head of 260 feet. Two of these units are turbo-gear connected to 100-hp. diesel engines, and the other two, which are held for standby service, are direct-connected to 100-hp. electric motors. Owing to the superior economy of the engine units, they carry all of the load. With fuel oil at 7 cents a gallon and electric energy at 3.06 cents per kwh., operation of the engine units shows a saving of about $425 per month over electric operation.

Marlin, Texas, offers another example of this type of installation. Here there are two 75-hp. diesel engines driving 5-inch two-stage centrifugal pumps through speed increasers. These pumps are rated at 1,125 g.p.m. against a total head of 130 feet. One unit is amply sufficient to carry the load, and the other is held as a standby. Figures for last year showed an average monthly cost for fuel and lubricating oil and maintenance of $70 per month, and an output of 500,000 gallons per day, indicating an operating cost of $4.66 per million gallons.

### Combined Water, Light and Power Plants

So far the pumping-plant has been considered as an isolated unit. Where it is operated in connection with a municipal light and power plant, as is frequently the case, other factors must be considered. In a situation of this kind, of course a prime mover is essential and in many cases the diesel engine is selected for this service because of the superior economy obtainable. By combining the two plants, labor costs are materially reduced and the utmost reliability of the pumping units is obtained without the necessity of having an excessive amount of standby equipment which would ordinarily be idle. In cases of this kind the pumping equipment may be clutch-connected to the prime mover, or it may be electrically driven.

An example of this type of installation may be found at Kenner, La. Here there are two 80-hp. diesel engine generating units, each of which has an extended shaft to which a two-stage centrifugal pump is connected through a speed increaser and a clutch. The water-works system is provided with an elevated storage reservoir of ample capacity to permit of intermittent operation of the pumps. Normally, only one unit is used, and that operates its pump during off-peak periods of the electrical load. This insures a good load factor for the engine and thus improves the operating economy. Two complete units are installed to provide maximum fire protection and thus to secure minimum insurance rates. The station shows sufficient profit from its electrical service to take care of all expenses in connection with the water service.

South Whitley, Ind., is another example of the combination plant. Here, however, the pumps are not mechanically connected to the engine but are driven by direct-connected motors which are supplied with current from the main alternators. This installation consists of three diesel engines with direct-connected alternators and exciters having capacities of 120, 240 and 360 hp. Pumping equipment includes one 500-g.p.m. and one 300-g.p.m. motor-driven centrifugal which pump directly into the city mains.

In an installation of this type where the pump motors operate continuously at partial loads, synchronous motors might be used to advantage, owing to their higher efficiency at partial loads. With leading power factor characteristics, they would raise the power factor of the station efficiency.

It is quite evident that no standard design can be devised that will meet the individual requirements of every community with equal efficiency. Local conditions dictate the design, and every problem must be worked out on its own merits. Suffice it to say that modern equipment in its present state of development offers a very attractive inducement to effect greater economies in water-works operation, and any town can profit by thoroughly investigating the possibilities offered.

## In Anticipation of the Washington Bi-Centennial —Plant Trees

WHEN, in 1932, the 200th anniversary of George Washington's birthday is celebrated under auspices of a Federal Bi-Centennial Commission in towns and cities throughout the country, 10,000 memorial trees will be ready for dedication, if present ideals and plans of the American Tree Association materialize.

"Every American should, in some way, aid in the proper observance of this anniversary of the father of our country," says Charles Lathrop Pack, President of the Association. "The most fitting of all memorials is a living one—a tree. Every individual can plant a tree. Boards of trade, civic organizations, women's clubs, men's clubs, can plant groups of trees, or avenues of trees. National organizations can conduct sectional planting of groups of trees or forests. Towns can plant town forests, states can further extend and plant state forests. In a word, trees and forests are the type of memorials which not only appeal to every one, but which the Father of Our Country himself would doubtless declare the most fitting memorial."

Mr. Pack suggests that the planting should be done when climatic conditions are suitable this year and during 1931 and 1932, and that the dedications should occur during the anniversary year. The American Tree Association is cooperating with the United States Commission for the Celebration of the 200th Anniversary of the Birth of George Washington, which Commission is headed by President Hoover. It will send information on what to plant, and how, and when to plant; and will register every individual or group planting, and send to each a Bi-Centennial tree-planting certificate, and register the planting on the National Roll of Honor.

# "The Revenue-Producing Safety-Tower"

*By* J. G. VAN ZANDT, C.E.
Gibson San Pedro Station, Los Angeles, Calif.

***A method of providing grade separation at important street intersections without cost to the city was suggested by Mr. Van Zandt at one of the public safety sessions of the recent National Safety Congress, at Pittsburgh. Because of the novel character of the proposal, excerpts from the designer's presentation of his project are here published.***

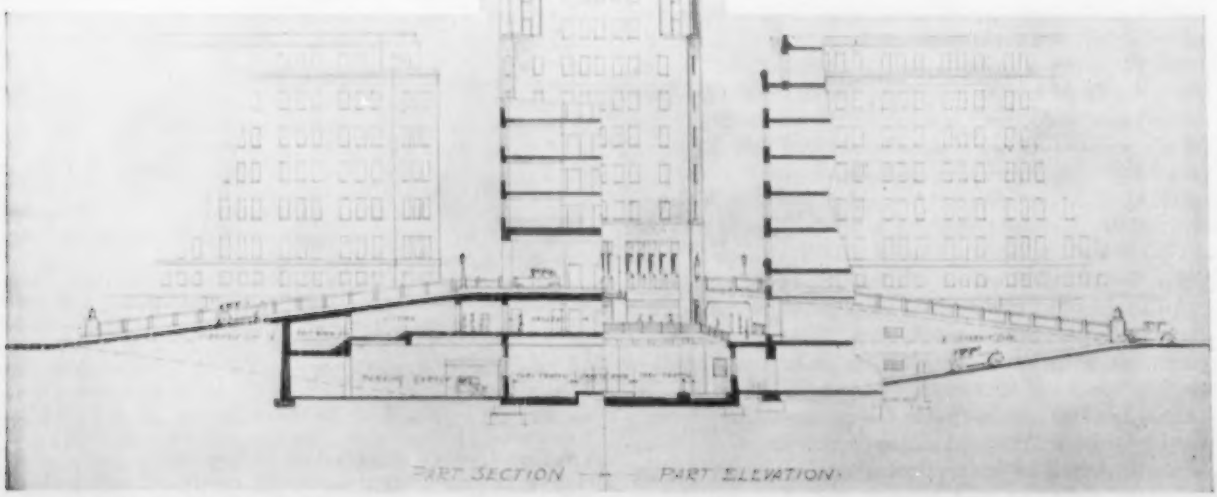
A VISION of future traffic requirements at important intersections, with congestion intensified by ever-increasing demands, forces all forward-looking traffic engineers to a study of new and more effective solutions of the problem.

There is no doubt that the complete separation of all lanes of traffic is desirable, and that great advantages in safety and time, and reduction of economic losses, can be derived by any treatment of an intersection which can satisfy the special requirements of the given point of congestion. But the difficulty has been that without some means of amortizing first expenditure and maintenance charges, the excessive cost of the installation makes prohibitive such an ideal intersection treatment.

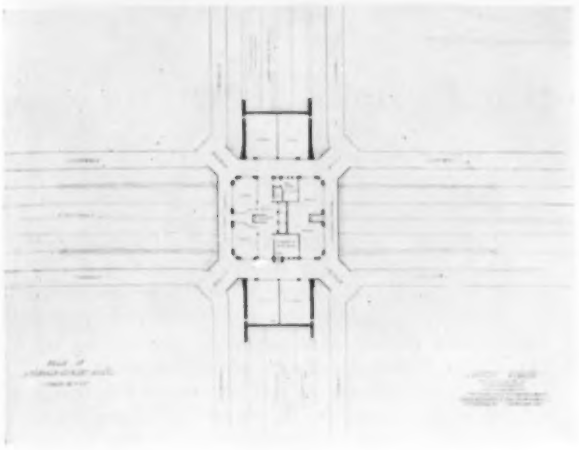
The Revenue-Producing Safety-Tower provides use of the city-owned space above and below the street-level at the intersection for parking, stores and offices, concessions and other revenue-producing features, from the rental income of which the complete amortization and maintenance charges can be paid. Safety thus becomes a free by-product; in fact, after the period of the amortization is finished, a revenue to the city is derived from this safety device. The investment required and the amount of revenue to be expected depend entirely on the intersection in question, and only after a thorough study of the particular conditions can an intelligent estimate be made. In many cases, however, cities of comparatively small size having peculiarly difficult traffic conditions at a principal intersection, may well afford this Revenue-Producing Safety-Tower as a civic center building or memorial tower which provides safe through-traffic flow without interruption, and satisfaction of the local needs for parking, bus-station, city-hall, service-club rooms and banquet halls, private offices and public rest rooms, first-aid stations and exhibits of the chamber of commerce.

Civic pride may suggest that an airplane beacon be located on this, the highest structure in the city, and an electric sign running vertically down each façade may place the community on the air-map as well as announce the progressive spirit of its citizens to the main highways on which it is located.

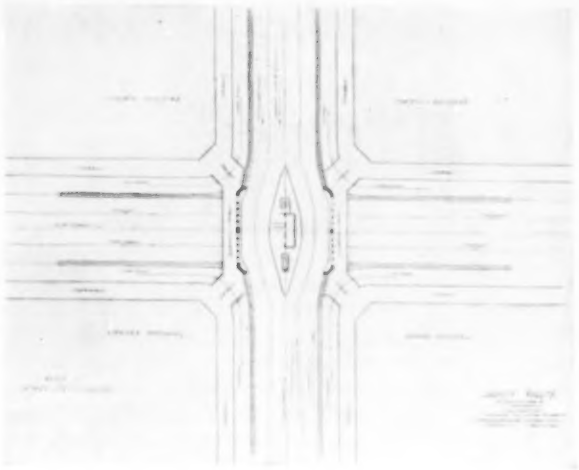
There are a number of technical reasons why this type of structure is especially desirable. It enhances real estate values of the adjacent corners because of parking space provided and the use of ramps for bringing the truck-loads of merchandise in and out of the basements of the stores with-




*Patent Applied For by J. G. Van Zandt*



STREET LEVEL
Pedestrian passages and traffic underpass are shown



UPPER LEVEL
Safety zones and elevator are indicated

out resort to loading zones. These same ramps are available also to patrons of the stores for access to the parking spaces in the basements and for use as unloading stations in inclement weather under cover. There are many other applications and extensions possible, such as underground driveways and private new lanes for delivery trucks, taking advantage of the new floor for some distance away from the tower, and also the development of bargain basements with special driveways for unloading patrons and arcades from one to another.

The increased traffic drawn to the safety tower intersection will prove to be a great advantage both to that intersection and to the other crossings of the city, as it will reduce the flow in the dangerous crossings by the attraction to a safer crossing with no possibility of delay.

The accompanying elevation and plans show a typical design for a Revenue-Producing Safety-Tower. The street level is reserved for pedestrians by right of "first discovery," and the vehicular traffic roadways are lowered under and raised over this level. Elevators are provided as shown to take the passenger arriving at the safety zone on the lowest level up to the street, or upper level, or into the tower-office-building. Parking and right turning are shown and similarly many other features can be added as required. The shape of the building is especially advantageous, the upper floors giving all outside offices with elevator and hall in the center and allowing a central elevator to serve the view balcony at the top floor.

In conclusion, it may be said that with a structure of this type a community has but to grant to a financially competent construction company the right to construct this building and operate it for the period of amortization, and at the end of that period to receive it as a gift with the many benefits which it has provided.

# Parade Restrictions Sought in New York City

THE "parade nuisance" in New York is not a new problem. Big parades through the important thoroughfares and in central business sections have long been recognized by public officials, by civic organizations and by merchants as involving tremendous losses. Normal pedestrian and wheel traffic is temporarily paralyzed; the actual cash losses in suspension of business affairs, not only along the line of march, but along sections of lateral streets as well, often reach staggering totals; beggars, panhandlers, and catch-penny peddlers capitalize such occasions for preying on the general public.

The situation seemed to the Fifth Avenue Association to have become grave enough to require emergency treatment. This body therefore appointed a Special Trade Committee to make a detailed study of the existing situation and outline measures of relief. After many months of work, this Committee, in collaboration with Arthur G. Mathews, the Association's Director of Research, has completed a report, directed to the Mayor and the Board of Aldermen, and incorporating proposed amendments to the city's existing Parade Ordinance.

The proposed amendments which, among other things, would prohibit parades in the business section of Fifth Avenue during business hours, are urged, "not as unduly discriminatory, but rather as protective and progressive," and for the benefit of the city as a whole. "While we do not hold that all parades in New York City are harmful and should therefore be discontinued," says the Committee, in its conclusions, we do firmly believe that the importance and desirability of parades in large cities have greatly diminished. . . . Due to the advent of the automobile with its attendant traffic problems, and the development of large retail areas in the heart of most of our cities, parades have little, if any, place (except on extraordinary occasions of state or war), in the *center* of such cities." Proposed alternate routes are outlined.

The statements of the situation as affecting the dollar-and-cents interest of the New York public, the merchants and professional men, and the local government, are reinforced by reports from a group of other cities tending to show that the New York case against the average big parade would be valid in many places.

# How Chamber of Commerce Secretaries Anticipated —and Approximated—the Census Returns

IT pays to be conservative in estimating a city's population, in the opinion of the twelve Chamber of Commerce executives whose predictions as to the April 1 population of their cities were closest to the actual 1930 Federal census figures. Early last spring estimates were submitted by the leading civic-commercial organizations in 127 cities of over 50,000 for publication in the April issue of THE AMERICAN CITY, which appeared just before the Government census enumeration was started. Only 14 of the 127 estimates were less than the official figures, but 4 of these 14 were among the twelve estimates which most closely approximated the Census Bureau's enumerations.

Comparison with the official figures reveals variations in the accuracy of the 127 estimates ranging from .1 per cent to 43 per cent. Seventy-four of the variations were under 10 per cent, an even half of this number being less than 5 per cent inaccurate. Thirty-four of the 127 were within 10 to 20 per cent of the official figures; 11 varied from 20 to 30 per cent; and 8 were as much as from 30 to 43 per cent off.

***Of the 127 population estimates submitted to The American City by Chambers of Commerce in cities of over 50,000 for publication in the April number of the magazine, which was issued just prior to the taking of the 1930 Federal census, the following were closest to the Government figures. Portraits of the staff executives of eleven of these leading organizations are published on the opposite page.***

| City | 1930 Census | Chamber of Commerce Estimate | Percentage of Variation |
|---|---|---|---|
| Milwaukee, Wis. | 572,557 | 572,000 | — .10 |
| Cincinnati, Ohio | 449,331 | 450,000 | + .15 |
| Peoria, Ill. | 105,180 | 105,000 | + .17 |
| Niagara Falls, N. Y. | 75,398 | 75,000 | — .53 |
| Lancaster, Pa. | 60,596 | 61,000 | + .67 |
| Flint, Mich. | 156,422 | 158,000 | +1.01 |
| Memphis, Tenn. | 253,136 | 256,000 | +1.13 |
| Topeka, Kans. | 64,005 | 65,000 | +1.55 |
| Somerville, Mass. | 103,604 | 105,350 | +1.69 |
| Fall River, Mass. | 115,301 | 117,500 | +1.92 |
| San Francisco, Calif. | 637,212 | 625,000 | —1.92 |
| Syracuse, N. Y. | 209,277 | 205,000 | —2.04 |

## Methods of Estimating

Estimate and enumeration tallied closest in the case of Milwaukee, Wis. A letter from the Milwaukee Association of Commerce, of which Harry J. Bell is Executive Director, explains the method followed:

"The manner in which the estimate was arrived at is simple enough. We kept a record of various estimates that were made by such agencies as the Telephone Company, the Electric Company which provides electricity and street-car service, and the City Directory people. These data, together with other estimates and indications, were considered, and the guess—for it was a guess—was based upon all these various figures. . . . We also considered the probable rate increase as based upon past experience."

The Cincinnati estimate, which was made by Miss Edythe Cowie, Manager of the Research and Information Department of the Cincinnati Chamber of Commerce, ranks second in the list of closest approximations. Several factors were taken into consideration in making the estimate. "The basic factor," writes W. C. Culkins, the Executive Vice-President, "was the registration for the Presidential election, which amounted to 209,641. Deducting the women, 89,638, left 120,003 men; multiplying that by 3.8 (the figure set by the United States Census Department as the number of persons per family in Cincinnati), we have 456,011 persons. In order to avoid possible exaggeration, this was reduced to 450,000. A check was also made of the number of electric meters in use, gas meters in use, telephones and passenger automobiles, using the accepted factors in each of these, and, checking back against the registration report, all seemed to justify the figure of 450,000."

A somewhat different method was followed by Orren I. Bandeen, Manager of the Chamber of Commerce of Flint, Mich., who writes:

"The last estimate of Flint's population by the Bureau of the census was 148,800 for the year 1928. For several years previous the annual increase in Flint's population, according to the estimate of the Bureau of the Census, was about 6,200. Had conditions continued normal throughout 1929 and 1930, this method of computation would have given Flint a population of 161,200 at the close of 1930. The census, however, was taken as of April 1, 1930, at the beginning of the second quarter of the year. Adding to 148,800 one and one-fourth times 6,200 gives 156,550 as the estimated population for April 1, 1930. The actual Government census was 156,422. In making my estimate of 158,000 I failed to make allowance for the fact that the census was to be taken April 1 instead of some time during the middle of the year."

## Close Computations

Frederick E. Norton, Secretary of the Chamber of Commerce of Syracuse, N. Y., made later a closer estimate than the one which he submitted to THE AMERICAN CITY. He reached his closest figure, which was only 214 more than the Government census figure, by selecting a figure of average growth for the decade based on the growth of the city between 1910 and 1920 but slightly less than this figure because of abnormal conditions during the war; added to this was an estimate of the population of annexed areas based on the voting registration; from the total was subtracted 7,000, representing persons who worked and bought merchandise in Syracuse but who lived outside the city limits.

Additional factors taken into consideration by others of the twelve leading estimators were the number of workers in industrial plants, an assessor's census, and school attendance.

Three estimates in the list published in THE AMERICAN CITY for April, it was explained at the time, were mathematical computations based wholly on the previous rate of growth of those cities. A comparison of these figures with the 1930 census enumerations discloses the fact that the accuracy of this method can vary from as much as 2.8 per cent to 18.2 per cent.

HARRY J. BELL
Exec. Director, Milwaukee Association of Commerce
Milwaukee, Wis.
(Appointed 1925)

W. C. CULKINS
Exec. Vice-Pres., Cincinnati Chamber of Commerce
Cincinnati, Ohio
(Appointed 1923. Exec. Secretary, 1911-1917)

RALPH M. FIELD
Business Manager, Peoria Association of Commerce
Peoria, Ill.
(Appointed 1922)

R. D. HOUSE
Secretary, Niagara Falls Chamber of Commerce
Niagara Falls, N. Y.
(Appointed 1922)

## THEIR POPULATION ESTIMATES HEAD THE LIST

***These staff executives represent eleven of the twelve Chambers of Commerce whose population predictions, of all the 127 estimates published in the April issue of The American City, most closely approximated the 1930 census figures (see the list on the opposite page). The organization not represented here is the Chamber of Commerce of Somerville, Mass., of which Joseph W. McCarthy was Secretary at the time the estimates were made. The "unlucky thirteenth" was the Chamber of Commerce of Nashville, Tenn., which nearly tied for a place with Syracuse, N. Y., with a percentage of variation of — 2.06.***

W. B. MOREY
Secretary, Lancaster Chamber of Commerce
Lancaster, Pa.
(Appointed 1920)

ORREN I. BANDEEN
Manager, Chamber of Commerce
Flint, Mich.
(Appointed 1928)

C. M. ANDERSON
Exec. Vice-Pres., Memphis Chamber of Commerce
Memphis, Tenn.
(Appointed 1926)

EARL BROWN
Secretary, Chamber of Commerce
Topeka, Kans.
(Appointed 1924)

FRANK W. DUNHAM
Manager, Chamber of Commerce
Fall River, Mass.
(Appointed 1928)

ROBERT NEWTON LYNCH
Vice-Pres. and Gen. Mgr., San Francisco Chamber of Commerce
San Francisco, Calif.
(Appointed 1912)

FREDERICK E. NORTON
Secretary, Syracuse Chamber of Commerce
Syracuse, N. Y.
(Appointed 1916)

A TYPICAL HEAD FRAME AND HOIST HOUSE USED IN THE CONSTRUCTION OF WATER TUNNEL NO. 2, NEW YORK CITY

# Driving a Water-Supply Tunnel Electrically Through Solid Rock

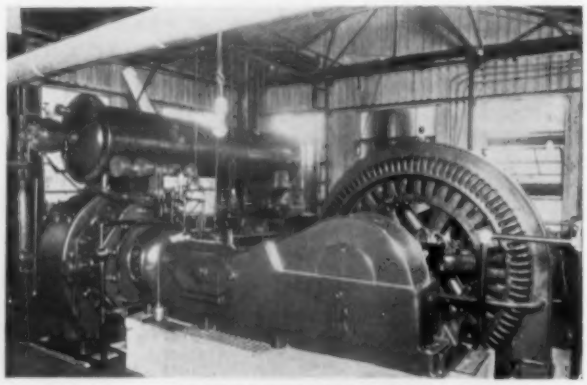
*By* S. J. MURPHY

THE construction of New York City water tunnel No. 2 is progressing satisfactorily. The Patrick McGovern Co., contractors and engineers on this project, completed 35 per cent of the job in about 25 per cent of the 70 months allotted under the terms of their contract with the Board of Water-Supply.

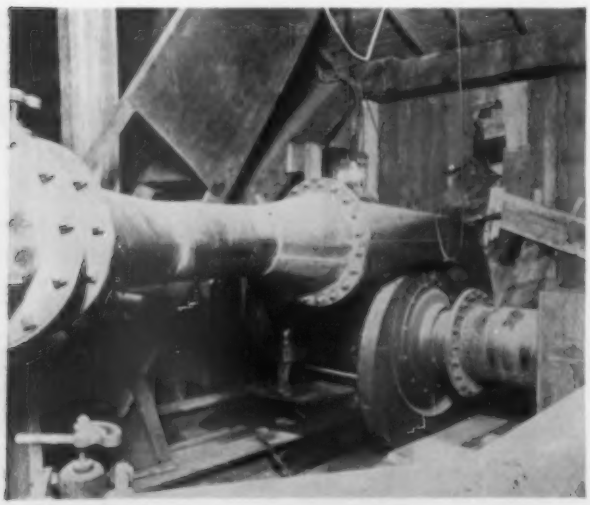
City water tunnel No. 2 parallels and connects with tunnel No. 1 both at Hillview Reservoir, Yonkers, and at Brooklyn. It is being built not only to increase the supply of water to New York City but also to materially increase the pressures in the rapidly growing sections of the east Bronx and Queens County, as well as to assure an adequate supply of water in cases of accident or repairs to city water tunnel No. 1.

### Massive Shut-off Gate

This new tunnel is approximately 21 miles long, 19 feet in diameter, and built through solid rock about 500 feet underground. The low point of the tunnel is roughly in the middle and at this point a shut-off valve of titanic proportions consisting of curved bronze doors will be installed. This valve will permit the unwatering of either the north or the south half of the tunnel for inspections or repairs. The uptakes from this tunnel consist of shafts at one-mile intervals. These shafts will be capped with large bronze Y's feeding into laterals for local distribution.



A G-E 400-HORSEPOWER SYNCHRONOUS MOTOR DIRECT-CONNECTED TO AN INGERSOLL-RAND RECIPROCATING AIR-COMPRESSOR



A MOTOR BLOWER SET FOR VENTILATION

### Electricity in Construction

The construction of this tunnel has developed many novel applications of General Electric equipment, the most notable being the use of centrifugal blowers for the removal of powder gases and the supplying of fresh air to the working heads. These blowers are capable of moving 7,500 cubic feet of free air per minute from the heading to the surface for removing smoke, or from the surface to the heading for supplying air to the workmen. Next in importance probably, is the use of sixteen balanced cage Nordberg hoists driven by 250 horizontal direct-current motors. The variable voltage method of remote control is used on these hoists and is supplied by synchronous motor generator sets.

The more ordinary applications of electrically driven equipment include the use of synchronous motors for driving high-pressure Ingersoll-Rand compressors, squirrel-cage motors for driving centrifugal sump-pumps, battery-operated mucking locomotives, the wound rotor motor-operated skip hoist type of mucking machine, and various

other uses such as machine shops and battery charging equipment.

### Handling Muck from Tunnel to Surface

The head frame and housing for hoist machinery is illustrative of the temporary permanent manner in which the McGovern Company has solved the problem of handling large quantities of excavated material in dense centers of population. The headings, with the exception of two, are quite dry, and excellently ventilated, and the whole job, except for the working faces, is well lighted electrically. Little dust or moisture and no steam or harmful gases are noticeable in the drifts of this tunnel.

### Eliminating Noise

The question of noise on the surface, always troublesome on a 24-hour job in cities, has been solved by the use of electrically driven and centrifugally operated machines wherever possible. Noise, always a factor in production, has been largely eliminated underground by the same means. In fact, the only din on the job is that made by the drillers in driving holes for dynamite charges.

The McGovern Company has shown great ingenuity in the use of electrical equipment to eliminate noise and give the taxpayers of New York City a great public improvement at a nominal cost.

# Prolonging the Service of Block Pavements with Asphalt Resurfacing

*By* C. R. STANHOPE
City Engineer, Ashtabula, Ohio

A FEW years ago, the city of Ashtabula had some old block pavements which were becoming very rough. We were confronted with the problem of what to do with these old pavements. To aid in solving the problem most economically, it was decided to make a study of how other cities were meeting it. As a result of this investigation, it was learned that many of the cities consulted were utilizing their old block pavements as foundations for a sheet asphalt wearing surface.

Ashtabula accordingly decided to try out the resurfacing method. The first street to be resurfaced was Park Street, from Division to Church Street, which is subjected to heavy traffic. Convinced by the success of the Park Street project of the merits of this type of improvement, Ashtabula subsequently resurfaced with sheet asphalt the old brick paving on Center, Lake, Bridge and Main Streets, as well as the asphalt block paving on Fisk, Walnut and Prospect Streets. Fisk and Walnut Streets are light- and medium-traffic streets. Prospect, Center, Lake, Bridge and Main Streets are subjected to heavy truck and pleasure traffic.

### Sequence of Operations

The first step in resurfacing our worn block paving was to fill all holes in the old surfaces with asphalt binder, bringing it to an even grade. The asphalt binder used in this phase of the work, consisting of a mixture of asphalt cement and small broken stone, was bid upon by the ton. After the repaired foundation was compacted by a 10-ton roller, it was ready for the new surface. An asphalt binder course, 1½ inches thick after being rolled, was laid on the old pavement. Over this was immediately constructed the sheet asphalt wearing surface, also 1½ inches thick after rolling.

A SECTION OF MAIN STREET, ASHTABULA, OHIO, RESURFACED DURING 1929 WITH TEXACO SHEET ASPHALT

We have found that our old block pavements can be resurfaced with sheet asphalt with minimum traffic delay and small inconvenience to the public, and we believe this method is the most logical and economical solution of the problem of what to do about worn pavements of this kind.

Ashtabula's sheet asphalt pavements have been constructed by the Koski Construction Co., of Ashtabula, Ohio, with Texaco asphalt. Street and plant inspection have been handled by the H. C. Nutting Co., of Cincinnati, Ohio.

## International Traffic Safety Exhibition

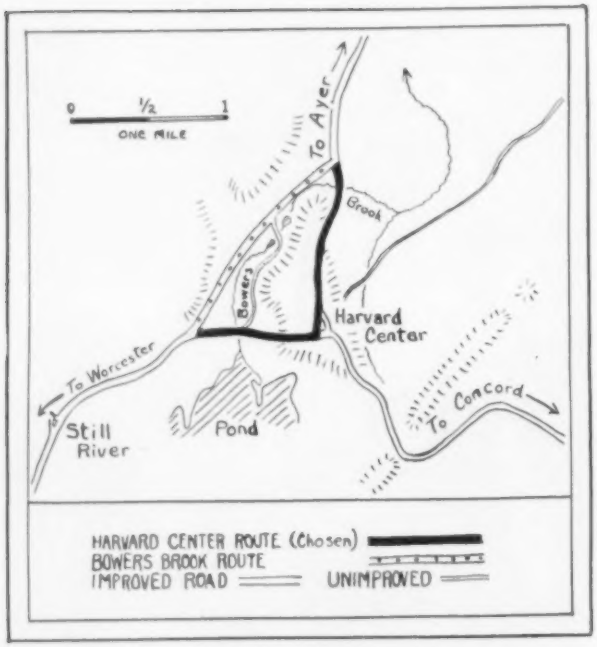
AN International Exhibition for the Safety of Highway Traffic will be held in Milan, Italy, April 12-27, 1931, coinciding with the meeting of the second Italian National Conference for the Standardization of City Traffic Regulations and Signals, at which will be gathered several hundred police chiefs, traffic executives and officials of Government, provincial and municipal highway bureaus and of the street-railway and bus services. The Exhibition is organized jointly by the Royal Automobile Club of Italy, through its Traffic Commission, and the Board of the Milan Industrial Fair.

The exhibits will be divided into two main classes: (a) commercial and industrial, including exhibits by manufacturing firms; and (b) statistical and historical, including exhibits by official bodies, police departments, Governmental and municipal boards, public service boards, public utility companies, etc. The latter group of exhibits will be handled by the Special Commission of the Royal Automobile Club, which will arrange the display of diagrams, photographs, posters, models, etc. Further information about the Exhibition may be obtained from the Club, Corso Venezia, 69, Milan, Italy.

# The Town That Took the Wrong Road

***The Strange Highway Tangle of Harvard, Massachusetts, and a Plan to Relieve It***

*By* **BENTON MACKAYE**
**Vice-Chairman, Regional Planning Association of America**




HARVARD'S CHOICE OF HIGHWAYS, 1927
Whether to run the new through road via Bowers Brook or via Harvard Center. Bowers Brook Route: direct along the valley, avoiding the hill and the town. Harvard Center Route: a detour over the hill and through the town. The county recommended the first, but the town voted to have the second

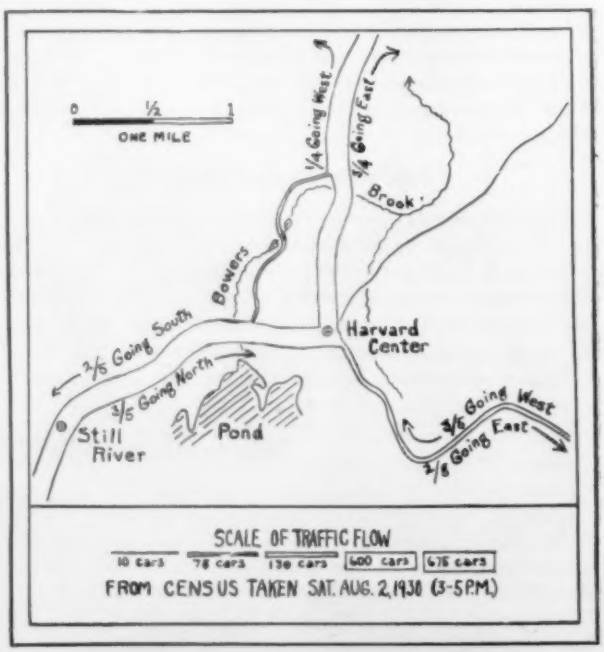
HARVARD, MASS., once took the wrong road, but now she has a chance to get the right one. She has voted (once) for self-disintegration by allowing herself to be penetrated by a through line motorway. Now comes the opportunity of redeeming her error—a mistake bred of inexperience in a modern speeding metropolitan world.

### The Mistake of 1927

Harvard, Mass., contains Harvard Center. This is a hilltop New England village, a classic instance of a classic type—village green with elms and maples, meeting house, town house, schoolhouse, store, library, mellow-shaded homes. This village, being on a hill, has since the beginning been a town without a railway; and she had—until 1927—been a town without a motor way. Good roads in plenty she possessed, but not that concrete replica of the railway embodied in the through-line motorway; hence her motor traffic was local and not "through." Local traffic is to through traffic what one car is to a train of cars, what (from actual count in Harvard) one car is to 30. Through traffic east and west went via the Mohawk Highway; through traffic north and south went via various highways removed and unimproved.

Enter in 1927 the project for a through highway north and south—from Worcester to the Mohawk Road (at the east edge of Ayer). For the Harvard section of this highway two routes were proposed. Both went from Still River (a village two miles southwest of Harvard) to the Mohawk Highway in Ayer (four miles north of Harvard). One route went northeastward on a gentle grade via the valley of Bowers Brook on the west side of the Harvard ridge; the other climbed the ridge eastward to Harvard Center, thence northward through the town and down the hill to the curving Bowers Brook. One route was direct and level, the other indirect and steep; one cut a corner and escaped the town, the other went out of the way to crowd through the town. Common sense and the County Commissioners recommended the direct, level, townless route, but the Town Selectmen chose the indirect, hilly, town route. The citizens in town meeting February 7, 1927, voted with the Selectmen—the result, perhaps, of that vague instinct to place their town "on the map."

But which map? The commercial map? Ask the storekeepers what trade they get from the through line motorists: "We can't sell them anything more than an ice cream cone." How about the residential map? Ask the prospective home buyer: "That's a nice house," said one, "but of course we wouldn't want to live on that noisy road." No wonder, with 300 cars per hour on a



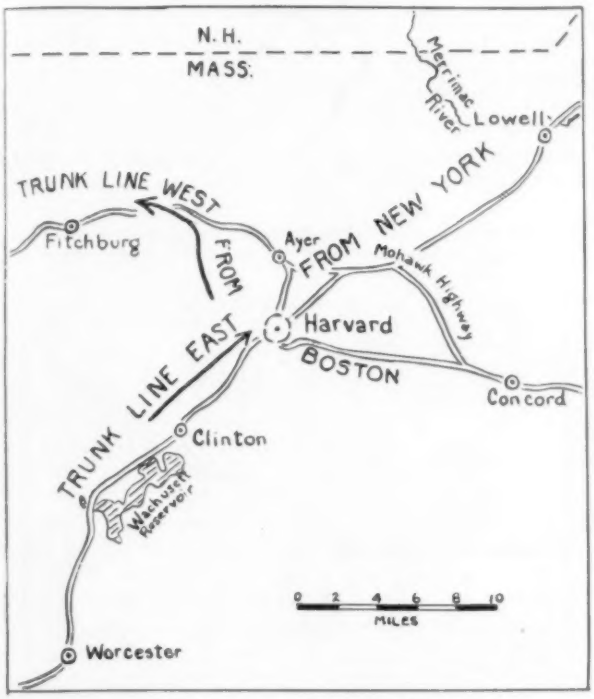

THE RESULT OF HARVARD'S CHOICE, 1930
A peak traffic flow of 300 cars per hour. From census taken on a summer Saturday afternoon

summer Saturday afternoon when local traffic calls for ten!

### The Opportunity of 1931

But another project is on the horizon, one which will add to or subtract from Harvard's predicament—according as it may be handled. Harvard has a second opportunity. Will she redeem a pitfall bred of inexperience in a modern speeding metropolitan world?

The new highway project which is to decide Harvard's fate is the new location of Route 110 between Worcester and Lowell. From Worcester to Still River and beyond to Babcock's Farm (one mile west of Harvard Center)




HARVARD AT THE CROSSROADS

the present route will be used; from Lowell to "Stake 117" (one mile northeast) the road was practically completed during the past season (1930). With the opening of the coming season (in April, 1931) the critical section between Babcock's Farm and Stake 117 must be laid, which will place an important New England junction point either in Harvard Center or outside.

To understand how Harvard can become an important junction, we must understand the significance of the present Concord-Harvard-Ayer highway. This is an alternative link, between Concord and Ayer, of the Mohawk Highway, running east and west across Massachusetts. This link heretofore has been unadvertised and consequently has been but sparsely used, aside from the Army trucks from Camp Devens, whose authorities have been quick to see its possibilities. As soon as the motor public also gets informed about this way, it is bound to become (in spite of one hill and a mile and a half of extra distance) an important auxiliary to the Mohawk Way—especially on account of the fewer kinks and crooks encountered. Thus some point in Harvard township is destined to become for New England's motor traffic a junction comparable to Ayer Junction in New England's rail traffic. Where within the township this crossing is to be, depends, as already indicated, on the route chosen for the new road between Babcock's Farm and Stake 117.

### The Two Contrasting Plans

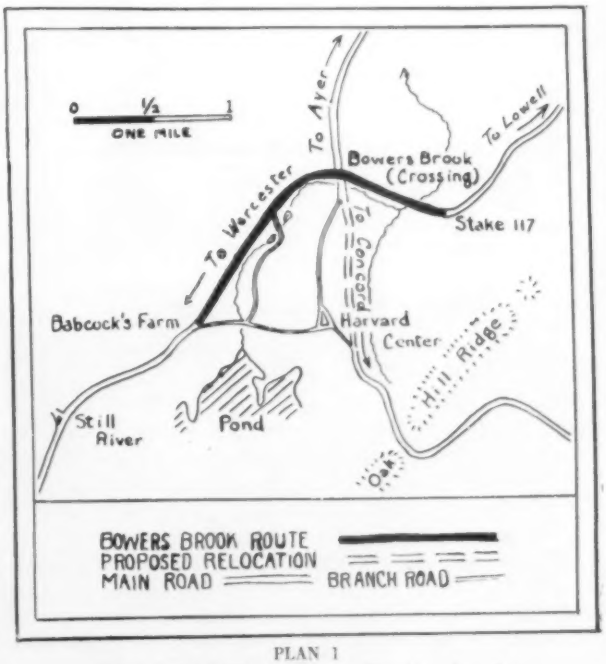
For this there are two contrasting plans:

1. *The Bowers Brook Crossing.*—From Stake 117 the new road would go to Babcock's Farm via a route along the gentle grade of Bowers Brook, crossing the Concord-Harvard-Ayer link (just described) near the bridge over Bowers Brook (one mile north of Harvard Center). By relocating the section of this link between the bridge mentioned and the foot of Oak Hill Ridge (along the valley east of the Harvard hill) the through traffic from Concord to Ayer would be diverted from Harvard Center. By this plan (including the relocation mentioned) the important junction point referred to (for New England's motor traffic) would be located by the Bowers Brook bridge.

2. *The Harvard Center Crossing.*—From Stake 117 the new road would go to Babcock's Farm via a route up over the hill, crossing the Concord-Harvard-Ayer link at Harvard Center. All through traffic from New York and Worcester to Lowell and state of Maine points would be crossed by part of the traffic from Boston to western points. Thus Harvard Center, not Bowers Brook, would become the motorway junction.

Let us compare these two plans:

Under Plan 1—the Bowers Brook Crossing—the town of Harvard should be placed and well placed—upon both "maps." The prospective settlement at Bowers Brook could be laid out with special facilities for making it a wayside emporium (for gas and meals and antiques) and thereby get its merited place on New England's "commercial map." Indeed, here is a wonderful opportunity for planning a settlement *de novo* and making it a model of use and beauty and unity which should be widely heralded. Also, the topography here is such that the roads could cross at different levels, so the settlement would automatically obtain a place upon the "safety map." Harvard Center, on the other hand, could remain the home village




PLAN 1

The Bowers Brook Crossing: By this plan the through traffic from New York down east, and part of that from Boston out west, would cross at Bowers Brook bridge. This would make two distinct Harvards—Bowers Brook the commercial settlement, and Harvard Center the home village

and retain its place upon the "residential map." Such commercial interests as there may be in Harvard Center that have something to sell in the big through traffic (north, south, east, and west) can manage perhaps to move to Bowers Brook. This may be a nuisance, but is not impossible. It may be regrettable—as in many another case where individual and public interests are not one.

Under Plan 2—the Harvard Center Crossing—the town would finish up the suicidal job started by the vote of 1927: she would get a bad mark on the residential map without compensating advantages on the commercial map.

### Another Plan Proposed

A third plan has been proposed—Plan 3: This is to place the crossing not immediately on the Harvard Common, but part-way up upon the hill—a third of a mile north of the meeting house. This route would be shorter by two-fifths of a mile than the one via Bowers Brook, but it would climb the hill instead of running almost on a level. It would make a nice question whether the "junction" (and the "emporium") would be "in" or "out" of Harvard Center. What is "Harvard Center," and how much breathing space does it imply? Is it the actual Common only or the little hill itself on which the Common lies? If Harvard Center aspires to a worthy place on the "residential map," how much area is due her for growth in residence? What is her rightful residential domain?

There is one critical element which argues for substantial radius or else for protection of topographic features, and that is the element of *noise*. The distance to the causeway and the exposure to its din often make the difference between a home and not a home. Many a home must be thus obliterated—and again we say it is regrettable. But the difference between home village and single residence is the difference between public and individual interest. The home village therefore has a public right to protection from contaminating sound. This protection may be achieved either by distance or by topographic features. In both these ways Harvard Center should be reasonably protected under Plan 1, with the crossing at Bowers Brook and the through roads located in the valleys beneath—though the sufficiency even of this much protection may be open to question. There seems to be no question, however, that the village would be flagrantly lacking in protection, and grossly hampered in its residential growth, with the crossing as near as provided in Plan 3, and the road usurping the whole north side of the hill.

### A Home Neighborhood—or a Second-Rate Emporium

Here, then, are the alternative plans—1, 2, and 3. With sufficient study of them—by the heretofore uninformed majority—*before* and *not during* the confusion of town meeting day, the town of Harvard can, if she will, be prepared for her second opportunity. It looks as if the choice were clearly drawn: She can elect to turn her village into a junction (by retaining the through road upon her hill), thus helping her decline as a home neighborhood and her transition to a second-rate emporium. Or else she can definitely separate these functions and attain excellence in each by definitely separating on the map her living quarters from her marketing quarters—becoming "Harvard Center" on the one hand and "Bowers Brook" upon the other.

PLAN 2

The Harvard Center Crossing: By this plan the two streams of through traffic would cross at the village common in Harvard Center

PLAN 3

By this plan the two streams of through traffic would cross on the hillside at the north edge of Harvard Center, which would be closely flanked on its northwest side by the new road

**"Townless Highways"**

Readers interested in the foregoing article will also be interested in the article entitled "Townless Highways—To Relieve Through-Traffic Congestion and Restore a Rural Wayside Environment," in THE AMERICAN CITY for May, 1930, pages 94-96.

# Making the Mohawk Valley Turnpike Safe for Night Driving

*By* ALVIN C. SPITZER,* President,
and DUDLEY M. DIGGS, Member,
Highway Lighting Committee,
Mohawk Valley Towns Association

EVERY county and city official has an interest in the safety of the highways, and especially is this true with reference to the hours of darkness, when all hazards are greatly increased.

The county official is obviously interested in the main traffic routes through his county, both as an official (as it affects the prosperity and comfort of all of his constituents) and as a citizen of the county (as practically every citizen is also an automobilist).

It is not quite so obvious why a city official should be interested in the county highways. Therefore, it may be well to refer briefly to a few of the many reasons.

### A Wide Range of Interest

The cities are interested because:

1. The main rural highways are more and more becoming arteries of travel between cities, for passengers, business and freight.

2. The rural highways are more and more becoming the media over which flows the trade between city and country.

3. The city or cities, in many instances, are the largest taxpayers within the county and therefore deeply interested in all improvements within the county, although they may be beyond the corporate limits.

4. City people driving for recreation in the evening are deeply interested in the safety of the surrounding highways as well as the city streets.

Civic organizations are also deeply interested, as is evidenced by letters written by chambers of commerce, Rotary Clubs and other non-partisan organizations.

For example, the Chamber of Commerce of Schenectady addressed the Board of Supervisors of Schenectady County as follows:

"The Executive Committee of the Chamber of Commerce heartily approves of this forward-looking step, and respectfully requests your favorable consideration of this project at your very earliest opportunity."

The Rotary Club of Amsterdam transmitted the following resolution to the Board of Supervisors of Montgomery County:

"We, the members of the Rotary Club of Amsterdam, N. Y., declare ourselves in sympathy with the movement on foot to light the Mohawk Valley Turnpike (Route 5) from Schenectady to Rome and therefore urge the Honorable Board of Supervisors of Montgomery County to make the necessary appropriations of monies for the lighting of this highway within the county of Montgomery."

These letters were written when the Mohawk Valley Towns Association was asking the various counties within its territory to start highway lighting along the main route and to extend this lighting by a definite amount each year.

The object of this Association is the improvement and beautification of the Mohawk Valley. It has many projects on its program, but chief among them is the lighting of the main route through this historic and beautiful valley. The goal of this project is the lighting of the entire main route, known to map-makers and others as Route No. 5. The stretch that lies within the territory of the Association runs all the way from Schenectady to Rome, a distance of 100 miles. Through the excellent cooperation of the boards of supervisors in the counties interested, over 25 miles of highway lighting are now being installed. It is hoped that within five years the whole 100 miles will be lighted so that it can be traveled at any time with ease, comfort and safety.

### A Test and Demonstration

When the Mohawk Valley Towns Association decided on this project, it secured the cooperation of the automobile clubs, boards of supervisors and city officials. Together they investigated its practicability, its cost, and the advantages to be derived. Most of the installations already in existence were not good enough to produce the results demanded, so the cooperation of the manufacturers and power companies was secured. A mile of road was selected—not for the ease with which it could be lighted, but for the difficulties it presented. The whole stretch was of black, non-reflecting surface, with two hills, two curves, a railroad on one side, and on the other side alternating roads, fields and river. Midway was an intersecting road

* Mayor, Scotia, N. Y.

A PART OF THE LIGHTING DEMONSTRATION ON THE SCHENECTADY-AMSTERDAM HIGHWAY
Illuminated by G. E. Novalux highway lighting units equipped with Holophane B-Sym-etric rippled bowl refractor

and bridge, joining the main road at right angles. At one end was an overhead pass with steep approaches and right-angle bends at each end of bridge.

### A Thorough-Going Experiment

The lighting of this mile of road was worked on until the results were proclaimed satisfactory by city, county and state officials, illuminating engineers, power company officials, laymen, newspaper reporters and others. Many things were considered, but chief among them was safety —for the pedestrian as well as the motorist. This commercial mile with its day-in and day-out traffic, sometimes a dry road surface, sometimes wet—foggy nights, clear nights, moonlight nights, dark nights, stormy nights, snow, sleet, rain—was studied under all conditions.

It would be impossible to tell you all the conditions and angles. To know that one of the officials of the Chamber of Commerce drove through this lighted zone six times a week for many months will serve to show the thoroughness of the observations.

In addition to the above mile, the Department of Public Safety made available a street on which more dangerous tests could be conducted. A police officer was stationed at each end to divert traffic while the tests were in operation. Here studies of the invisibility of dark objects, the danger to pedestrians, and other matters, were made with greater thoroughness than could be done on a highway carrying traffic.

It was found that no lamp smaller than 4,000 lumens gave satisfactory results. The larger lamps gave increasingly good results particularly where the road surface was dark. The units should not be spaced more than 250 feet apart, and where possible should be arranged staggered—that is, first on one side of the road and then on the other. This is particularly desirable on wide roads. The units should be at least 22 feet above the road surface. With the modern equipment, however, it is not necessary to mount the units 30 feet as was the case when highway lighting was first tried to any extent.

The cost was given intensive study and it was found that, compared to the advantages, it was negligible. The total cost, including installation, maintenance and current, was less than 3 per cent of the initial cost of the road.

That this forward step is attracting more than the usual attention is evidenced by the fact that recently a delegation of 62 representatives from various counties, boards of supervisors, improvement associations, and trail associations from 13 different counties held a conference to discuss the highway lighting activities of the Mohawk Valley Town Association and to see the lighting demonstrations and tests which it, in conjunction with automobile associations, has sponsored.

### Advantages and How They Are Produced

Some of the major advantages to be derived from this most worth-while activity are:

1. Increase in safety of the highway by preventing accidents, hold-ups, vandalism
2. Much greater safety in night driving
3. Additional comfort in night driving
4. Faster, but safe, night traffic
5. Enhanced real estate values
6. Increased road capacity
7. Electricity rendered more readily available to farmers

Now just how are these advantages accomplished?

a. By spreading the traffic more equally over the 24 hours.

At present the big majority of the traffic is during the daylight hours. This traffic could be relieved during the day by diverting it to the night hours. If the highways were lighted, there would be a greater incentive to do more and more trucking by night. Repairs could be made more easily, tires changed, etc. Night speeds could be safely increased resulting in more cars per mile throughout the 24 hours.

Pleasure and commercial salesmen's automobiles would use the road more at night, thus decreasing the day travel by that amount and adding it to the evening traveling. Many times the saving of a few hours means the saving of a day—the difference between an immediate unloading and a wait of possibly twelve hours. In the winter when darkness comes on early, a lighted highway would allow the saving of this time and thus increase the effective running time of commercial vehicles.

b. By minimizing headlight glare, making it feasible to drive with the lower or depressed beams of their headlights.

c. By showing up holes and obstacles in the road.

At night headlights cast dark shadows on irregular road surfaces. These shadows obscure the irregularities and make it impossible to gage their depth and width. If the light were directed from above, the irregularities would be shown in their correct perspective.

d. By illuminating the sides of the road.

e. By illuminating pedestrians.

This is a very important point, as a large percentage of the accidents are between pedestrians and autos (in one state over 60 per cent). It is mostly between dusk and dawn that these occur.

f. By having the pole lines for the highway lighting, the power becomes more readily accessible to the farmer—a most important item, as the farmer, if he expects to survive, must depend more and more on electricity to relieve him of manual labor, as it has done in factories and cities.

Proper highway lighting is the solution of some of the most vexing highway problems of today. We have therefore tried to present briefly the investigation undertaken, the small cost, and the advantages derived from adequate illumination of the highways.

## Highway Accidents by Day and by Night

STATISTICS separating rural highway accidents from urban street accidents are, in general, not obtainable at present; but recently an analysis of all traffic fatalities on the state roads of Indiana from the twelve months ending August 31, 1930, was made by Kirk M. Reid, Illuminating Engineer, Nela Park Engineering Department of the General Electric Co., in Cleveland, in collaboration with A. H. Hinkle, Superintendent of Maintenance, Indiana State Highway Commission, and presented in detailed tabular form by Mr. Reid, with a discussion from the standpoint of when and how rural traffic fatalities occur, at the recent convention of the American Society of Municipal Engineers. Although county and township roads were not covered, it may be regarded as significant that of the total fatal accidents involved, 37 per cent occurred during the day, 9 per cent during dusk, and 54 per cent after dark. Mr. Reid goes on to say:

"Based upon a traffic survey, Mr. Hinkle estimates that about two-thirds of the total 24-hour traffic on the state roads of Indiana is during the daytime. This means that, after daylight has failed or is failing, about one-third of the traffic produces almost two-thirds of the fatalities. The relative night hazard, therefore, is about four times the day hazard. There would seem to be ample justification for comprehensive trials of highway lighting, to determine to what extent it wlil reduce this appalling night hazard."

# Reducing Rural Highway Congestion and Accidents by Proper Design

By MAXWELL HALSEY
Traffic Engineer, The Commonwealth of Massachusetts

IT is fundamental that we should design our highways in such a way as to prevent and discourage accidents and congestion. Highways should not be built so that they have inherent and potential accidents in them. We should not have to go back and introduce foreign remedial devices to correct what could have been prevented with much less cost in the beginning.

Let us consider how control can be built into the highway. Some attempts have been made in the past to do this: we have cut down the grades on our hills to prevent blind spots, to prevent skidding, and to assist commercial traffic; we have removed curves or made them less severe for practically the same reasons; and we have roughened the surface of our highways to prevent skidding. Further extensions of these principles merit consideration.

### Medial Strips or Parkways

Traffic is supposed to keep to the right side of the center line. Failure of slow-moving vehicles to take the right-hand lane causes those passing to travel upon the left-hand side of the road. No matter how effective the enforcement, there will always be those who will cut out of line and dash down the left side of the highway. Failure to keep to the right of the center line is quite common, and frequently results in accidents and congestion. The introduction of a raised medial strip on a four-lane highway is a means of automatically forcing motorists to stay on the correct side of the road. The physical separation of the two highest-speed lanes, with the resulting abolition of the head-on collision, is a real factor in accident reduction. It has the further advantage of reducing the headlight glare, another cause of accidents.

The only two arguments which may be used against it are, first, that it requires more land, and, second, that all the room is needed for traffic flow. The land argument is not sufficient in the majority of highway locations, and the demand for all the space for the use of traffic is not sufficient, because the limitations upon a highway are at the intersections, and the medial strip would never be used unless there were at least two free lanes available for travel upon each side of the strip.

### Improved Shoulders for Parking

One of the difficulties of our present highways is that the lanes which are intended for travel are frequently used for parking. This sometimes causes a serious hazard by creating a series of bottle-necks, and in most instances seriously reduces the capacity of the highway. Motorists frequently park upon the improved part of the

### *The Author's Conclusions*

*as to what would happen if all the recent improvements in highway design and traffic control were concentrated on one highway:*

*"The main highway traffic would be protected from the unimportant light cross traffic by the* through way regulation. *If the cross traffic should be enough to warrant signals, the* actuated signal *would guarantee that no traffic would be stopped unless cross traffic were actually there to use the time. If cross traffic were still heavier, a large* rotary traffic system *would permit continuous movement at a fairly high rate of speed. And if the cross traffic movement approached or equaled that of the main highway, a grade separation would be provided.*

*"The highway would be of sufficient width to permit passing at all times, and the outside lanes would be attractive enough to induce the slow-moving vehicles to use them. Adequate center strips or parkways would be installed to reduce the headlight glare, and to prevent head-on collisions between the two high-speed lanes. The surface of the highway would be such as to prevent skidding. As a result of all these improvements, the economic saving in accidents and delay would be tremendous."*

TWO DUAL TYPE THREE-LANE HIGHWAYS

That at the left, of 30-foot width, is in Wellesley, Mass. The sign reads: "Use right lane except when passing." Four cars are shown using the outside lanes, and one car is passing on the center lane

The road at Natick, Mass. (right), is of experimental dual type. The central one of its three 10-foot lanes of cement was blackened at time of construction

IN SUDBURY AND SOMERVILLE

The photograph reproduced at the left shows one car passing another on a curve of a dual type highway in Sudbury, Mass. If the road had been all cement, the passing car would probably have kept close to the center line with a less degree of safety insured. Note the generous shoulder between traffic lane and guard-rail and the space for side-road parking

The raised medial strip illustrated at the right is the "Northern Artery" where it enters the congested area of Somerville. Here the medial strip is about 10 feet wide, the roadways 50 feet. The new main trunk which the state of Massachusetts is building from Boston to Worcester is of this type

road because the shoulder is rough. By a slight improvement of the shoulder, smoothing and leveling it out, or, if necessary, treating it with oil or tar, it can be made to attract parking, and thus all the lanes of the highway can be made free for travel.

### Clearance from Guard-Rail

Another factor which frequently limits the use of the outer lane is the proximity of the guard-rail to the edge of the improved surface. Motorists will not travel close to fixed objects at high speeds, and if there is not room for them to move over they will slow down. The usual result of close guard-rails is that motorists swing to the left and encroach upon the lane intended for passing. This either causes accidents or reduces the capacity of the highway. An additional two or three feet of clearance will do much to encourage motorists to use the outside lane.

### Dual Type Highways

The whole country is launched upon a multi-lane highway program. Everywhere the demand is for wider and wider highways. In order to be practical, a multi-lane highway must have each lane used efficiently. The present use of lanes is rendered inefficient because of the failure of the slow-moving vehicles to keep to the right. This frequently causes two lines of vehicles to completely monopolize a 30-foot, three-lane highway, or even a 40-foot, four-lane highway, because vehicles will hesitate to pass to the right, particularly at fairly high speeds.

There is no law more difficult to enforce than the keep-to-the-right regulation. Motorists early formed the habit of driving in the middle of the road because of the high crowns which prevailed. The elimination of the high crown has not served to correct this habit. Motorists still continue to prefer the center lanes. Sometimes guard-rails are so close to the edge of the outside lane that they discourage its use. At other times cars are parked too close to, or actually upon, the outside lane. In some cases a mental attitude prevents motorists from using the outside lane. Some are over-cautious and feel that they need all the room they can get, while others are just too lazy to pull over to the right after passing one car, and thus cling to the passing lane while they slowly overtake one vehicle after another. However, the most important reason why motorists have not used the right-hand lanes is that the surfaces

EXCEPTIONAL PROVISIONS

At the left is shown an improved shoulder treated with oil and made so attractive that motorists will not be tempted to park on the cement paving

At the right is the only example in Massachusetts of the dual type road with two center lanes making provision for simultaneous passage in both directions. The picture was taken at the outskirts of Stoneham

of these lanes are frequently not so smooth and attractive as those of the center lane or lanes.

An important principle of highway traffic is that it will travel upon the most attractive surface to be found. Motorists will frequently go so far as to travel upon the left side of the road if it has the smoother surface. There are several reasons why the outer edge of the highway has been less smooth than the center. The shoulder frequently breaks down and wears out before the center does. Street-car tracks are usually built in the center of the road, and the car companies often lay better pavement than does the town, or, if the pavement is rough, there is a temptation to ride the rails. In addition, the center lanes are sometimes repaired or resurfaced before the outside lanes. The result has been that motorists, in seeking the lines of least resistance and greatest comfort, have neglected to use the outside lanes.

### Attracting Traffic to the Outer Lanes

Let us next consider a way to facilitate passing by keeping the slow-moving vehicles to the right. The obvious and customary plan is to provide the necessary room, erect signs, paint lane lines, and then provide enough motorcycle officers to obtain enforcement. This plan would undoubtedly work, but traffic officers are expensive, and it is almost economically impossible to provide enough of them to develop such a driving habit. A great improvement over this method is to provide right-hand lanes, which you expect to be used by the slowly moving traffic, with surfaces having attracting power not only equal to that of the center lanes but far superior to it. If this is done, the traffic will follow the lines of least resistance and, seeking the best surface, will automatically keep to the right.

Several pieces of road designed for this purpose have been constructed throughout the country. Those in Massachusetts are called the "dual" type, and are constructed with the outside lanes of cement and the center lane or lanes of macadam. This provides a marked contrast between the inside and outside lanes. The cement, being smoother than macadam, attracts all the traffic, and the macadam is used only for passing. Driving upon the macadam gives a slight vibration and a rumble, caused to some extent by the use of balloon tires. The lanes are clearly marked by the joints and by the contrast between the light color of the cement and the dark color of the macadam. Those in Massachusetts have been very successful.

There are a few obvious limitations upon the dual type highway: First, the three-lane dual type should not be used around sharp corners, because it would encourage passing where the vision is obscured. Second, the three- or four-lane dual type should not be used where an unbalanced flow may be desired. Third, the cement might not be used economically in swampy ground, without expensive filling, although there is no reason why the same principle of a differentiation of smoothness and color could not be developed in other materials. Fourth, the joints of the dual type might prove an additional maintenance problem, although past experience has not indicated this to be the case.

Some of the dual types of highway outside of Massachusetts have not been a success. Let us consider some of the reasons. In some instances the center lane was only four to five feet wide, obviously not wide enough for use. In others the outside lanes were only a few feet from the ditch, and motorists were afraid to use them. In still others, no parking facilities were provided, and the parking upon the outside lanes developed into a series of "bottle-necks." In some cases the cement was too smooth and motorists in wet weather ran with one wheel upon the macadam to prevent slipping. However, all these difficulties were simply matters of faulty design, and could easily have been avoided during the original construction at little or no additional cost.

### Channelizing Islands

Another method of physically forcing motorists to drive properly is that of the use of traffic islands. These are particularly useful in preventing the cutting of corners by those making left turns. These islands when grassed over add an artistic touch to the highway itself.

### Grade Separation

It is common knowledge that the limitations upon the capacity of a highway are to be found at the intersections, and that grade separations are admittedly the ultimate solution. It is a significant fact that a highway system composed of four-lane highways with grade separations at all important crossroads, has a greater capacity than does a highway system composed of six-lane highways without grade separations. It is my belief that rather than build highways wider than four lanes, the money should be expended upon grade separations in order to bring the capacity of the intersections up to that of the highway between intersections.

—From a paper on "Rural Highway Traffic Problems," presented before the National Safety Congress in Pittsburgh, in October, 1930.

## For Protection Against the Invading Nuisance: Zone

ZONING, the only safeguard against unwelcome intrusions upon the safety, quiet, and orderliness of residential neighborhoods, protects against the unknown as well as the familiar and predictable developments that are not wanted.

Miniature golf appeared, an unheralded little brother of the hot-dog stand and the gasoline station, and almost immediately began to ensconce itself in the best family residence districts with its garish white lights, its blatancies—to which mechanically produced "music" is often added—and its interminable hours, both evenings and Sundays. And the best family districts have been able to establish no certain immunity unless they are zoned. The courts recognize that this form of amusement may at any time *become* a nuisance.

One of the latest decisions on this point comes from Philadelphia, where citizens sought an injunction against the establishment of a miniature golf course in the suburb of Germantown. In denying the injunction the Judge said:

"Of course it is true that a property owner, especially in a fine suburban district, probably would not welcome a neighbor of this sort, but, in the absence of zoning regulations, and having in mind that such a golf course is in itself a legitimate venture, it would seem that any resulting features are of a nature that must be borne by a property owner in the absence of any restriction or easement on the neighboring property."

At the incredibly recent date of a year ago, the problem of miniature golf in residence districts as a matter to lose public officials their sleep and drive private citizens to the courts for relief, was still unheard-of. The suggestion this fact holds for unzoned cities, is this:

Nobody knows the nature or the proportions of next year's successor to this year's intruder: Calamity prevention is far simpler than calamity cure.

# Less Parking—More Purchasing, in Los Angeles

*By* WALTER R. LINDERSMITH
**Executive Secretary, Los Angeles Traffic Association**

LOS Angeles has proved, through incontestable figures, that prohibition of parking, or severe restriction of parking, has no adverse effect on the number of automobiles coming into its central business district. On the contrary, it is definitely shown that proper restrictions encouraging the free movement of traffic greatly increase the number of cars that carry patrons to mercantile establishments within this business area. These conclusions are based on a series of surveys made by the Los Angeles Traffic Association at intervals since 1924. They are particularly important to this city, as the question of parking has for many years been a delicate one in political circles and many bitter debates and hearings have been held over its ramifications.

There was a time, as shown by the records of the city's legislative body, when Los Angeles merchants and business men simply would not admit that prohibition of parking could mean anything but distinct losses to their trade. Police and traffic officials occasionally made well-meaning efforts to obtain at least a measure of relief of congestion, but every effort to prohibit parking by blocks was strongly opposed and eventually beaten. Even today there are few entire blocks where all parking is prohibited at all hours, but the merchants are now beginning to realize that their interests are not suffering in consequence of proper parking restrictions and that, on the contrary, reasonable parking control is a distinct benefit to business.

Recently it was proposed to establish a crosstown car line on one of the narrow downtown streets, and business houses on this street were approached. It was found that 98 per cent of these business houses were willing to accept total prohibition of parking in front of their establishments provided the proposed street-car service was obtained.

Of late years, there has been no attempt to completely prohibit parking in the central business district of Los Angeles. Instead, legislators have been content to gradually increase the restrictions as they were needed to remedy conditions. At the present time all parking is prohibited between 4:30 and 6:00 P. M. during the peak rush hours. Also all parking of individual cars in the central business district is restricted to 45 minutes during the day. Besides this, more than half of all available curb area has other restrictions, ranging from entire prohibition to 20-minute parking for loading vehicles.

### Cordon Counts in 1924, 1927 and 1930

Yet, with all these restrictions, the total number of motor vehicles entering the business district on normal days is increasing, and it has continued to increase since the Traffic Association made its first surveys in 1924. In 1924 there were practically no parking regulations in Los Angeles and nearly all of the curb space was available to the automobile. Following is a cordon count of vehicles entering this district over certain streets in 1924, 1927 and 1930, for the eight-hour period covering business hours:

| | |
|---|---|
| 1924 | 127,651 |
| 1927 | 149,307 |
| 1930 | 166,959 |

The 1930 figure of 166,959 represents approximately 40 per cent of the total city motor-vehicle registration, and about 20 per cent of the Los Angeles County registration. Here we have a very pronounced increase of cars entering the central business district, corresponding closely to the increase in the number of automobile registrations over the period.

### Less Curb Parking—More Off-Street Parking

During the same period, however, the percentage of available parking space in this area has been materially decreased. In 1927, there was 45,308 feet of restricted space and 63,844 feet of curb available for parking, or accommodation for 3,547 vehicles at the same time. The 1930 survey showed that the parking curb space has been reduced to 52,442 feet, providing accommodation for but 2,913 cars. On the basis of these figures it is apparent that although 634 fewer automobiles could be parked within this area, the actual number of cars entering the district in a normal eight hours was increased by 17,652. The survey further discloses that only 21 per cent of the cars which are driven into the central business district on a normal business day can be parked along the curbs. The other 79 per cent obviously must be parked off-street or driven out of the district again without stopping, except possibly at loading zones.

It is true that the increase in the number of cars entering the business district, coupled with the decrease in curb parking space, has brought about a stronger demand for off-street parking. Many obsolete buildings, most of which are in the older section of the downtown area, have been torn down and the space more profitably used for parking of automobiles. There also have been a number of multiple-story garages that have assumed part of the parking burden. Practically all the newer buildings are constructed with provision for inside parking.

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### Traffic Improvement Brings Trade Improvement

**The experience summarized in this article adds the testimony of Los Angeles to the fact which has been receiving increasing recognition throughout the United States: that when proper parking restrictions are made to improve traffic conditions, there results a corresponding improvement in trade conditions through the increase in the number of potential customers brought to the doors of the mercantile establishments by automobiles and other means of transportation.**

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### Parking Restrictions Now in Force

Los Angeles' parking restrictions are based on a series of surveys and amended to meet ever-changing traffic conditions. As stated previously, all parking is prohibited within the central area between 4:30 and 6:00 P.M. and parking is limited to 45 minutes between 7:00 A.M. and 4:30 P.M. Parking is also prohibited on important streets leading from the central area, for distances ranging from two blocks to more than a mile. Further restrictions are indicated by painted curbs. Red zones adjacent to street intersections and opposite street-car safety zones represent 45.7 per cent of the restricted parking space. Yellow zones, where vehicles may be parked for 20 minutes to permit the loading and unloading of merchandise, represent 24.2 per cent of restricted area. White zones, most of which are established in front of theaters or large hotels and restrict parking to three minutes to facilitate the loading and unloading of passengers, take up 4.4 per cent of this space. The rest is prohibited to parking because of fireplugs, mid-block crosswalks or private alleys.

Downtown merchants and property owners are now more concerned over the accessibility of the central area by means of radial highways than they are over parking restrictions. As a result of a number of street opening and widening projects now under way, next year will see the completion of three new outlets to the south. These are Broadway, Olive Street and Flower Street. Six streets are now being opened or widened to the west, and two projects will make northern sections more accessible. The east also will have its new approaches.

The conclusion is reached that with the increasing of off-street parking space and the addition of new traffic lanes for inbound and outbound traffic, the Los Angeles downtown area must expect a continued growth of motor traffic. This increased traffic could not be handled without present parking restrictions and such further restrictions as may become essential in the near future.

# Sorel, Quebec, Has New Elevated Storage Tank

***Operation of the Water-Works System Greatly Improved by New Structure***

THE city of Sorel, Quebec, recently put into service an elevated steel water-tank which not only improves the operation of the water-works system, but also gives the city a structure which is an asset from the standpoint of appearance. The shell of the tank and the large steel riser pipe have been painted a silver gray color, with the name of the town in large letters. The steel columns of the tower are painted black, giving them marked contrast. The entire structure blends with the surrounding trees and landscape.

Sorel, whose population is 10,500, draws its water-supply from the Richelieu River. It is here that the Richelieu River drains Lake Champlain into the St. Lawrence River.

The continued growth of the city, as well as anticipated gains in the future, made it necessary to increase the water-works facilities. A Horton ellipsoidal-bottom elevated tank, made by the Chicago Bridge & Iron Works, and having a capacity of 208,000 Imperial gallons, was selected as the most efficient means of providing a dependable gravity water-supply. A complete filtration plant was built during the summer of 1929 and is now in operation.

Water is pumped into the elevated tank by means of centrifugal pumps. Electricity is the prime power used, with gasoline power as a secondary. From the tank the water flows through a distribution system of approximately 15 miles of 4- to 18-inch mains. There are 1,800 services, which cover some 2,000 acres. The average daily consumption is 850,000 Imperial gallons. There are 90 fire-hydrants in the system.

Adrein Plamondon, of Montreal, was consulting engineer on the improvement, and G. Archambault, Ltd., was the general contractor.

THE NEW ELEVATED STEEL WATER STORAGE TANK AT SOREL, QUEBEC

### Another Canadian Town Installs Large Tank

The township of North York, Ontario, installed a water-works system in 1922 with a 150,000-Imperial-gallon elevated tank located near Lansing, Ontario. At the present time the township water-works has approximately 2,000 customers. The average daily water consumption is 200,000 gallons, with a maximum of 350,000 gallons and a minimum of 150,000 gallons.

The tank, which was recently repainted a light grey after being in service for six years, blends into the landscape. G. H. Baker is Superintendent of Water-Works at North York.

# Winter Sports Programs

## Speed Up In the West

*By* GEORGE W. BRADEN

**Western Representative,**
**National Recreation Association**

EXPANSION in the winter sports programs of western municipal and county recreation departments during the past year has been sufficiently great to justify the expectation of a new quality of exhilarating, joyous outdoor life for the people of many sections.

The Department of Playground and Recreation of Los Angeles has established a winter sports center at Camp Seeley in the San Bernardino Mountains, one of the city's four municipal camps. The service includes provision for skiing, coasting and tobagganing. Two ski jumps have been constructed, one for amateur use and a standard size jump for experts. The toboggan slides are steel-lined troughs. A worker starts the tobogganers at regular intervals through releasing a trap-like arrangement set in a wooden platform. A winter sports carnival was held on January 25 and 26 in connection with the West End Rim 'O The World Club, events at the carnival being tobogganing, skiing, coasting, ash-can-cover sliding, snowshoeing, snow modeling, expert and novice ski races and ski jumps in competition and exhibition. The attendance at the carnival was approximately 15,000 people. Guests were cared for at the Department's beautiful camp lodge.

The Los Angeles County Department of Recreation Camps and Playgrounds maintains a winter sports center at its Big Pines Recreation Camp, which is located in the mountains some 70 miles from Los Angeles. The winter sports season is 71 days. The equipment at the center includes eight toboggan slides, each more than a thousand feet in length; an ash-can slide; an artificial ice skating-rink, supplemented by three acres of natural ice at Jackson Lake; one junior ski jump and one major ski jump. A master ski jump is now under construction at a cost of $3,000. The distance from the take-off to the landing field is 250 feet, hence facilities are available for world's records. The Department promotes a mid-winter sports carnival as a climax to the winter sports season, the affair lasting three days. The attendance this past year was upwards of 21,000 on the big day.

(Above) A Sled Slide at Camp Seeley
(Below) A Winter Sports Camp on Mt. Hood

Harry Finch, Commissioner of Parks and Public Property, Salt Lake City, in a determination to lessen hazards to children coasting on city streets, has developed eight splendid coasting and tobogganing courses within parks where the participants are entirely protected from traffic and passers-by. A splendid tobogganing course and opportunities for other winter sports including skiing and snowshoe hiking, have been developed at Mueller Park, an area of 600 acres given to the city. The park is reached from the end of the Salt Lake City-

THE CLUB-HOUSE AT CAMP SEELEY

Ogden bus line by a hike of three miles, making it unusually popular for organized groups of Boy Scouts, Camp Fire Girls and others.

Butte, Mont., is flooding and lighting some fourteen lot areas for skating.

The Metropolitan Park Department of Seattle is negotiating with the National Forestry Service of the State Highway Department looking to the establishing of a winter municipal sports center in the Snoqualmie National Forest. The prospective sites, which we have had the pleasure of going over with the local committee, are wonderfully well adapted for all kinds of winter sports and are accessible from the main line of the Milwaukee.

C. P. Keyser, Superintendent of Parks, Portland, is at the present time cooperating with the Portland Advertising Club in popularizing winter sports in the Mt. Hood region. Three ski clubs have been instituted and a number of tournaments have been conducted. The Portland Bureau of Parks anticipates establishing a winter sports center in the Mt. Hood region.

At Denver, the Superintendent of Parks, Eli M. Gross, is developing a large winter sports program, both in the city, where five park lakes are kept in splendid condition for ice skating, and in the mountain parks, where a standard ski course has been established.

# Winter Time Is Play Time

*By* **HAROLD A. GRINDEN**

**Recording Secretary and Past President, National Ski Association, Duluth, Minn.**

THOSE who stay by their firesides during the winter miss the biggest thrills of the year. One does not have to be a ski jumper or a figure skater to have fun out-of-doors during this season. There are skating, tobogganing, skiing, snowshoeing, and hiking; and participation in these sports is enjoyment for both young and old, to whom the fresh, bracing, crisp air, the bright sunshine, and the clear moonlight nights are healthful, invigorating, and pleasurable. Every city endowed with the right climatic conditions should make preparations for an annual winter carnival, frolic, or sports week. Along in February, midway between the holiday season and the break-up of winter in March, is the proper time for such an event. And it should be civic in character.

Duluth, Minn.; Lake Placid, N. Y.; Minneapolis, Minn.; and Wausau, Wis., are some of the American cities that stage winter sports celebrations every year. Duluth has had two gigantic winter carnivals, for which the civic clubs provided organizing committees. Duluth is fortunate in having right at its door an ideal natural place for winter sports. Concentrated in a valley, accessible by automobile and street car, are one of the finest ski slides in America, four 600-foot toboggan slides, a skating-rink, a club-house, and ski and snowshoe trails. At night this section is illuminated by huge floodlights and colored lights. Scattered throughout the city are 23 municipal skating-rinks. The city also boasts of the finest curling clubs and one of the largest and most modern artificial ice rinks on the continent.

Every city in the snow belt can become such a winter sports center if the lovers of winter sports will organize, and plan some event of interest for the coming season. It is well to bear in mind that the purpose of the event is to have everyone join in the fun, and take part in all the various activities. In other words, the people should be sold on the idea of personal participation: "Fun for Everyone."

A notable influence of the winter sports organization in Duluth—and other sports centers—has been in creating a vogue for gay-colored outdoor clothes, such as lend a picturesque note to the whole winter landscape.

A winter program to be successful does not have to be elaborate. If a city has a ski club, a program could be built around a ski tournament. Feature events such as dog-sled races, snow-modeling contests, ski and snowshoe races, tobogganing events, and hiking parties all create interest.

THE GREAT SKI JUMP AT DULUTH

# Minneapolis Tackles the Snow Problem

*By* JAMES GARBERG

**Superintendent of Streets, Minneapolis, Minn.**

THE manner in which a city tackles the snow problem depends upon its climatic conditions and the nature of the individual storm. Minneapolis is 58.79 square miles in area, has 796 miles of dirt streets, 237 miles of pavement, 465,753 population, and a motor-car registration on January 1, 1930, of 130,000.

Snow removal means different things to different people. To some it means merely plowing the roadways, but to the city officials in charge of streets, it means not only the plowing of the streets, but the removal and final disposal of the snow in various areas of the city.

U. S. WEATHER BUREAU STATISTICS, 1920-1930; SNOWFALL OF 3 INCHES OR MORE

| Date of Snowfall | Amount in Inches | Temp. at Snowfall | Temp. 24 hours After | Temp. 48 hours After |
|---|---|---|---|---|
| **December** | | | | |
| 12-21-20 | 5.3 | 20 | 20 | 10 |
| 12- 8-24 | 4.7 | 22 | 8 | 8 |
| 11- 4-28 | 3.6 | 15 | 10 | 10 |
| 12-13-26 | 3.5 | -2 | -13 | -8 |
| 12- 3-27 | 3.8 | 4 | 12 | 24 |
| 12- 7-27 | 6.3 | 0 | -10 | -7 |
| 12-15-29 | 5.3 | 13 | -2 | 2 |
| 12- 1-29 | 3.8 | 8 | 6 | 10 |
| **January** | | | | |
| 1- 4-22 | 3.0 | 10 | -3 | 0 |
| 1-14-23 | 4.2 | 28 | 19 | 8 |
| 1-27-23 | 3.0 | 20 | 16 | 19 |
| 1- 9-24 | 3.8 | 24 | 16 | 10 |
| 1-19-26 | 4.0 | 14 | 4 | -3 |
| 1- 5-29 | 3.2 | 4 | -4 | -10 |
| 1-22-29 | 4.5 | 4 | -12 | -2 |
| 1-24-29 | 3.0 | -2 | -4 | -9 |
| 1-12-30 | 4.1 | 11 | 5 | 10 |
| 1-14-30 | 3.0 | 10 | 2 | -8 |
| **February** | | | | |
| 2- 8-21 | 3.5 | 20 | 22 | 26 |
| 2-23-22 | 6.0 | 8 | 6 | 7 |
| 2-26-29 | 5.0 | 28 | 26 | 23 |
| **March** | | | | |
| 3- 3-20 | 3.2 | 16 | 7 | 2 |
| 3-19-20 | 6.8 | 34 | 33 | 38 |
| 3-29-24 | 11.0 | 20 | 16 | 13 |
| 3- 6-26 | 4.0 | 24 | 10 | 14 |
| 3-20-27 | 3.0 | 26 | 32 | 29 |
| 3- 8-28 | 5.7 | 26 | 24 | 30 |

(- Sign indicates below zero)

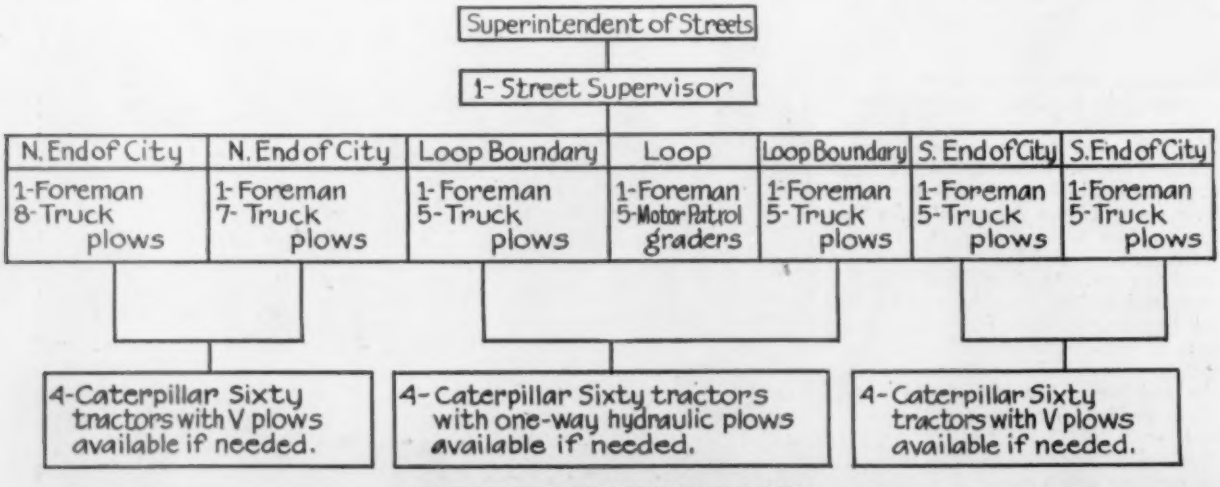
## City Owns All Equipment

All of the equipment used in Minneapolis is owned, operated and maintained by the Equipment Department and rented to functional activities on an hourly rental basis during snow-plowing operations. The Equipment Department consists of an equipment repair foreman, enough mechanics to render services and keep the equipment rolling, equipment operators and two equipment dispatchers.

## Organization for Snow Removal

By glancing at the chart shown below, it will be noted that the city is divided into seven street snow-plowing divisions. To each one of these divisions from five to seven pieces of motor equipment are assigned under the supervision of a field foreman. Each piece of equipment is given a list of important primary streets in the numerical order in which they are to be plowed. These lists are made out in card form and one copy is given to the equipment operator and one to the field foreman.

The field foreman has no authority to change any routing on these primary streets without first getting permission from the street supervisor. Primary streets on all the routes are so laid out that traffic will not have to travel more than one or two blocks to get to a plowed street, and will thus be able to reach any part of the city. Approximately three hours after a normal snowfall these primary streets have all been plowed. After the primary streets have been cleared, the routing of equipment and the plowing of less important streets is left almost entirely to the judgment of the field foreman of each division, who keeps in close touch with the main office. Approximately six hours after the snowfall all primary and secondary




SNOW-PLOWING ORGANIZATION DIAGRAM

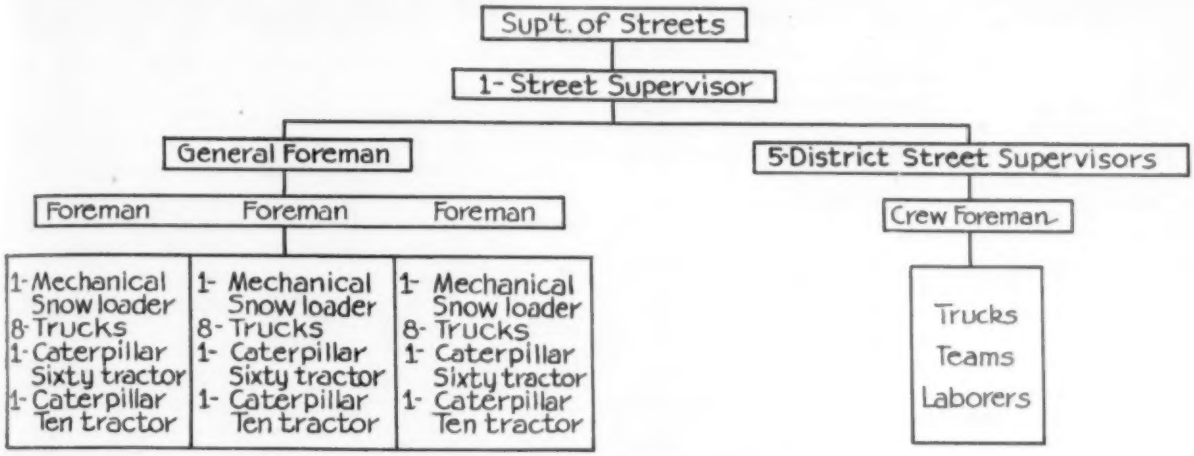



DIAGRAM OF THE SNOW-REMOVAL ORGANIZATION

streets have been plowed.

Caterpillar Sixty tractors with combination road machine and motor patrol graders are used on paved streets. All rutting and dangerous conditions are eliminated as a result of clearing the street down to its pavement surfaces.

### Sidewalks and Alleys

The city plows all its sidewalks. A 6-foot iron V-plow pulled by a team of horses is used for this work. A route

FRONT VIEW OF ONE OF THE SIDEWALK SNOW-PLOWS USED IN MINNEAPOLIS

is assigned to each teamster which he can cover in approximately six hours. The city is divided into 160 of these routes. The teams are hired and not owned by the city. Small tractors have also been used for this class of work, but it has been found that the use of horses furnishes better service at less cost in Minneapolis.

The city maintains a plow service in alleys where traffic conditions are such as to justify the expenditure. For this work either a truck or a Caterpillar Thirty tractor with a V-plow is used.

### Weather Reports a Great Help

The Department keeps in close touch with weather reports, and as storm conditions regulate the time of starting snow-plow operations, the night watchman is instructed to call the street supervisors in case of sudden storms. Unless it is an abnormal snowfall, they usually wait until the storm has abated.

### The Disposal of Snow

Each place in the city where snow may be disposed of has been marked on a survey map. Various areas are assigned to either mechanical loaders or hand crews in their numerical order as to their importance to the entire city.

The mechanical loading organization consists of a general foreman in charge of the three mechanical snow-loading crews. Under the general foreman is a foreman in charge of each crew, and assigned to each crew are one mechanical snow loader, eight 5- to 7-yard trucks, a Caterpillar Sixty tractor with combination road machine, and a Caterpillar Ten tractor with a one-way plow.

These crews operate as follows: After the snow-plowing organization has cleared the entire pavement and the street is cleared of all parked cars, the real task of snow removal starts. The sidewalks are cleared and a Caterpillar Ten tractor equipped with a specially built one-way plow is put to work pushing all the snow off the sidewalk into the street. When this has been completed, a Caterpillar Sixty tractor equipped with a one-way plow or with an attached blade machine starts operation at the curb, windrowing the snow about 5 feet away. The tractors pre-

SNOW PLOWED TO THE CURB READY FOR REMOVAL

paring this work are far enough ahead so as not to slacken up the speed of the loader. The loader is then put into operation, each machine being able to load on an average of 200 yards per hour. The machines work night and day until snow removal is completed. All the snow from these machines is dumped into the sewer through specially constructed manholes.

Hand loading crews center their activities on car stops, street intersections, fire-hydrants and in front of business houses, schools, and churches, outside of the loop district. The supervision of these crews is under the direction of a district street supervisor, who has his orders as to locations to be given snow-removal service and as to the numerical order in which this service is to be performed. The crews usually consist of a foreman, from eight to twelve shovelers, and either trucks or teams, depending upon the length of the haul. Most of this snow is dumped into sewer manholes, a small part of it being hauled to low land dumps.

### Parking and Traffic Conditions

The increasing parking problem and traffic conditions work a hardship on snow-plowing and snow-removal organizations and add in a large degree to the final cost of the work. In the Minneapolis loop district a 60-minute parking ordinance is in force between 8 A. M. and 6 P. M. Between 6 P. M. and 8 A. M. there is no parking regulation in force other than a six-hour ordinance which applies to the entire city. The Department takes advantage of this six-hour parking ordinance and has a number of men who are given police authority and assigned to certain sections of the city. Their duty is to tag all cars violating the six-hour ordinance. This procedure has been a big help in getting at the car owner who continually uses the street for a garage.

### Costs

Much has been said as to cost accounting for snow-plowing and snow removal. Some officials have advanced the cost per mile on snow-plowing as a unit. This as applied to city work is of no value and cannot be used in arriving at unit cost comparisons unless street classifications, climatic conditions, snowfall, and equipment used are all taken into consideration. This sort of report would be impractical and valueless for budget purposes. Attempt to figure snowfall is like guessing the days that it will rain. All machine costs in Minneapolis are based on the following rental rates:

| | |
|---|---|
| Mechanical loader | 7.00 per hour |
| 60 hp. tractor with V plow | 6.00 " " |
| 60 hp. " " one-way plow | 6.00 " " |
| 60 hp. " " blade machine | 6.00 " " |
| 30 hp. " " one-way plow | 5.00 " " |
| 5-ton truck with plow and 2 men | 5.00 " " |
| Motor patrol grader | 3.50 " " |
| 30 hp. tractor with V plow | 5.00 " " |
| Laborers | 5.50 per 8-hr day |
| Team | 10.00 " " |
| Sidewalk plow routes | 11.25 each route |

The Minneapolis snow-removal budget for 1931 for winter maintenance, which includes snow-plowing, snow removal, sanding, catch-basin thawing and general street maintenance and cleaning, with the exception of paving repairs, amounts to $204,000, or $51,000 per month, for the winter season, while the general street maintenance and cleaning expenditures, with the exception of paving repairs, for the rest of the year amounts to $712,000, or an average of $89,000 per month.

The 1920 winter street maintenance cost $197,000. If the city was justified in spending $49,250 per month for winter service in 1920, it is thought that it is fully justified in spending $51,000 for winter service in 1931.

—From a paper presented before the International Association of Public Works Officials.

# Analysis of Entries in NACOS Service Idea Contest

CIVIC service characterized the three prize-winning entries, and nineteen other "ideas" of the forty submitted in the second annual Service Idea Contest held by the National Association of Commercial Organization Secretaries. The winners of the contest were announced at the recent NACOS convention in Tulsa, as reported in THE AMERICAN CITY for November, page 143. Service to the whole community also played a part in several of the 18 entries which might be described as expressing predominantly business service.

The titles of the ideas involving primarily civic service are as follows:

"Relief from Oil-Contaminated Water" (first prize)
"Better and Adequate Water-Supply" (second prize)
"Establishment of a County Park" (third prize)
"Getting Federal Building in Right Place" (fourth place)
"Jobs for the Jobless—$130,000 Return" (fifth place)
"Organized Program for Public Improvement"
"Secured Adoption of New City Charter"
"Conducted 30-Day Tour for New Ideas" (in Civic Advancement)
"Smoke Abatement by Railroad Electrification"
"Organized and Handled Storm Relief"
"Secured Modern Tax System for State"
"Securing Program for Public Improvements"
"Helping City Solve Sanitation Problems"
"Fine Recognition of Honor Students"
"Community Use of Forest Reserves"
"Handling the Troublesome Parking Problem"
"Secured Bond Issue for Swimming Pool
"Furnished Cotton Seed to Storm Sufferers"
"Put Up Money for Highways"
"Promoted Practical Soil Conservation"
"Straightened Out Bad Hospital Complication"
"Reduction of Tax Rate"

The other entries in the contest had the following titles:

"Development of Dairy Industry" (sixth place)
"Bringing Industry Closer to the Schools" (seventh place)
"Women Organized to Receive Newcomers" (eighth place)
"Organize Bank to Replace One Failed" (ninth place)
"Development of Sheep Industry" (tenth place)
"Securing New Business for an Industry"
"Promoting Growth in Established Industries"
"Substantial Reduction in Taxes"
"Making Merchants' Business Profitable"
"Interesting Farmers in the National Grange"
"Annual Sportsmen's Show Big Attraction"
"Secured Bond Issue for Union Station"
"Developed Dairying—Secured $300,000 Condensery"
"Service to Tourists and Convention Visitors"
"Organized Poultrymen Into Cooperative Industry"
"Free Sunday Afternoon Entertainments"
"Put on Real Hospitality Day"
"Eliminated Radio Interference"

*Happily our experience has demonstrated time and time again that municipal misrule or neglect cannot go beyond a certain limit, and that there is in every municipality in this land civic virtue enough, whenever called into activity, to secure well-ordered and honest municipal rule.*

—From Introduction to Vol. I, Dillon's Municipal Corporations.

# Sewage Treatment Plant Built and Operated as a Public Utility

*By* HARRY G. PAYROW
M. Am. Soc. C.E.
Assistant Professor of Civil Engineering,
Lehigh University

## *Revolving Distributor Used Under Low Head Conditions*

THE number of installations of sewerage systems and disposal plants by relatively small communities has noticeably increased during the last few years. The Nazareth Sewerage Co., of Nazareth, Pa., a borough of 5,000 population, has now completed a sewerage system and constructed a modern sewage treatment works.

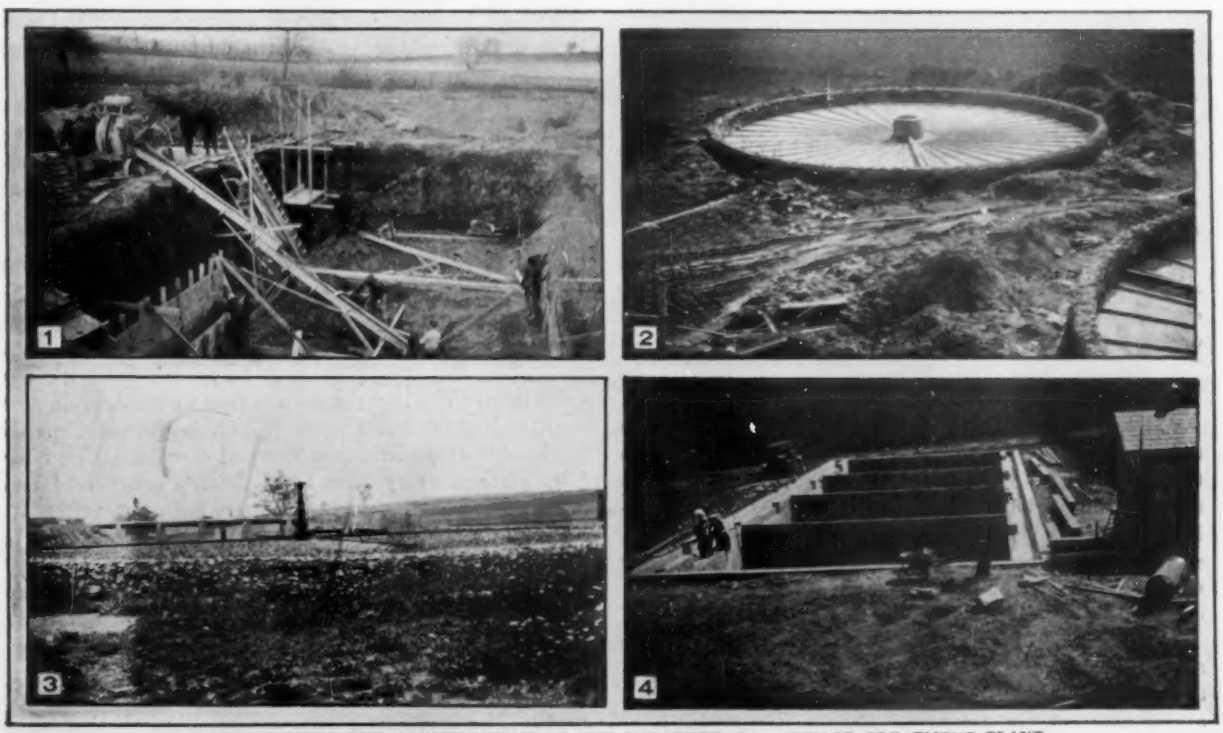
The Nazareth Sewerage Co. is a private corporation operating under a franchise granted in 1912 by the Borough Council. This places the sewerage system on a public utility basis, with a schedule of rates which are subject to approval by the Pennsylvania Public Service Commission. The schedule of rates is an arbitrary one based on the number of fixtures in a household, or upon the average number of employees in the instance of a manufacturing plant. This method is here justified in the absence of house water meters and in view of the fact that the water is supplied by another public utility company. The annual net income has been sufficient to pay 6 per cent on the outstanding stock.

There have been constructed and in use since 1912 about 3½ miles of sewer and a small plain sedimentation tank, which was entirely inadequate for the present population. In 1929 it was decided to extend the sewerage system and build a new disposal plant at another location.

The topographical situation of this borough is such that there are three drainage areas with a very small stream in each. These three streams meet at a point about two miles east of the borough, and it is here that the sewage disposal plant has been located.

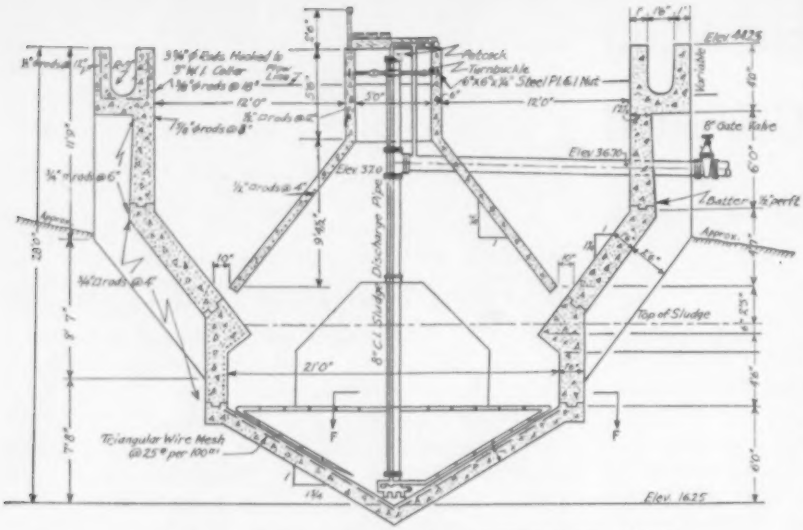
It was decided, in view of economy, to pump the sewage from the western drainage area into the central drainage area and for the present not to consider the third area. This plan would eliminate two long pipe lines through farm land, while the main line from the central area to the disposal plant would pass through a district which promises future development.

The present extension of the sewerage system consists of 30,000 lineal feet of vitrified sewer pipe ranging in size from 8-inch to 18-inch with a maximum cut of 14 feet, and includes 100 manholes. Ledge excavation was a large item of cost, as the borough is located in the heart of the cement rock district. A total of 8,256 cubic yards of ledge was excavated in trenches, which was 45.9 per



SCENES DURING THE CONSTRUCTION OF THE NAZARETH, PA., SEWAGE TREATMENT PLANT

1. Construction of the two-story sedimentation tank. 2. The underdrains and central collector of the trickling filter. 3. The revolving distributor installed and in operation on the trickling filter. 4. The completed resettling basins and the chlorination house




CROSS-SECTION OF TWO-STORY SEDIMENTATION TANK, NAZARETH, PA.

cent of the total trench excavation. Excavating machinery was used wherever it was possible. The contractor utilized two trenching machines, and a small steam shovel was used to advantage in rock trench.

An inverted siphon was necessary to carry the trunk line under the Lehigh and New England Railroad tracks. The siphon has one 6-inch and two 8-inch cast iron pipes, so arranged that each pipe takes the flow as the preceding pipe has reached its capacity.

The sewage pumping-plant is located as near the central area as possible. Two vertical shaft 3-inch Wood trash pumps are installed, driven by 15-hp. motors. Each pump has a capacity of 400 gallons per minute and operates under a head of 83 feet. These pumps are entirely automatic, being controlled by float switches.

The pump-house is 7 by 10 feet, built of buff brick with a slate roof. The sewer main from the western area discharges into a rough screening chamber and then passes into a sump with a capacity sufficient to hold the average flow for thirty minutes. The pumps are located, for accessibility, in a dry chamber with the suction pipes connected to the sump.

The sewage is pumped through a 10-inch cast iron pipe and discharges into a manhole located at the crest of the central area, from which point it flows by gravity to the disposal plant.

## Disposal Plant

A flow diagram at the disposal plant would begin as the sewage passes through a rough bar screen and enters the two-story sedimentation tank. The effluent then passes to the dosing siphons, where it is discharged to the trickling filters. The effluent from the filters flows through a small chamber where it is chlorinated and then into the resettling basins, from which it is discharged into a small creek.

The sedimentation tank is of the usual two-story type and is designed to allow considerable increase in the contributing population. The outside dimensions of the tank are 37 x 70 feet with a depth of 28 feet. The sludge compartment is divided into three hoppers, each connected by ample openings through two division walls. There are two sedimentation chambers running longitudinally through the tank, with the side walls sloping to the usual sludge slot. In the center of the tank is a wide gas vent, through which the sludge pipes rise. No attempt is made to collect the gas at this time. The tank is equipped with baffle-walls, and brass adjustable weirs, and by means of stop planks the direction of flow of the sewage can be reversed.

The tank is constructed of reinforced concrete mixed at a central plant and placed by means of chutes. Because of the small head available at the plant and the cost of excavation, the tank was kept about one-half out of the ground. As test pits indicated, no rock was encountered during construction.

## Revolving Distributor on Trickling Filter

The two trickling filters are of particular interest inasmuch as they are circular and a revolving distributor is employed. Each filter is 90 feet in diameter, built upon a 6-inch concrete base. The circular outside walls are of dry rubble masonry with the exception of the top course, which is laid in 1:2 mortar.

The underdrainage system of the filters consists of 6-inch half-tile pipe with a slot 1 foot long and ¾-inch high on each side. The joints are open except at the bottom, where a small quantity of 1:2 mortar is placed which is just sufficient to hold the pipe in its proper alignment. There are forty lines of drain pipe in each filter, equally spaced and laid radially with a slope toward the center, where the liquid passes into a central collector and then flows to the resettling tanks. The drain pipes are carried through the outside rubble wall of the filter for convenience of inspection or cleaning.

The filter medium used was crushed limestone ranging from 1½ to 2½ inches with an average depth of 5 feet. This required 2,851 tons of stone, placed by means of small trucks driven onto the filter wall and dumped, then spread.

The revolving distributor operates under a head of 18 inches of sewage, no other power being necessary. The revolving body of the distributor is connected to the central vertical supply pipe from the siphons by an air lock seal. The revolving portion is suspended from the top cross head. The spray arms are four in number, of tube steel, with spray holes about ⅜-inch in diameter, spaced on the side of the tube to give equal distribution over the filter surface. Guy-wires from the top cross head and fitted with adjusting screws support the arms vertically. There are also horizontal wires from each arm which give the arms greater stability.

The effluent is collected in the underdrainage system and flows to a circular channel at the center of the filter; from this point it flows to the chlorine chamber at the entrance of the resettling basins. There is then a brief resettling of the liquid, after which it passes into a small creek. There are four concrete resettling basins, each 30½ x 20 feet, with weirs and baffle-walls. The capacity is such that it will give about one half-hour settling period,

with one basin in reserve.

### Sludge Beds

The sludge beds are placed close to the two-story sedimentation tank. The surface of the ground was tamped to a smooth surface sloping 1 in 50, upon which was placed porous tile drain with open joints. Crushed stone to a depth of 10 inches was carefully placed on the underdrains, and then followed 6 inches of sand. The liquid is collected from the underdrains and flows through a line of 6-inch vitrified pipe with cement joints to the chlorination chamber and then passes into the resettling basins. The sludge bed area is 40 x 45 feet.

Much of this work was constructed during the winter months. The concrete was placed in several of the structures in very severe cold weather. Precautions were taken to keep the concrete at the proper temperature. Not only was the sand and water heated, but the flame from a large blow torch was directed into the mixer.

The total cost of the sewerage system and the disposal plant, including rock excavation, was $210,000. The cost of the disposal plant was $60,000. The entire work was designed by the writer and constructed under his supervision, with C. P. McFadden as resident engineer. The general contract was given to L. R. Gilbert, of Plainfield, N. J.

# Courtesy to Motoring Public a Feature of $300,000 Bridge Construction in Valley of "Mad Anthony" Wayne Victory

*By* M. A. BERNS

PROVISION for four traffic lanes, minimum interruption to passers-by during the construction period, and a town-name announcement to passing aviators, were among the construction goals realized in the building of Ohio's newest and perhaps most beautiful bridge. This structure, which was recently dedicated at Napoleon, Ohio, with Governor Myers Y. Cooper as principal speaker, is a 750-foot, $300,000 concrete bridge over the historic and scenic Maumee River, down which "Mad Anthony" Wayne drove the Indians in 1794 to avenge St. Clair's defeat and end the savage frontier wars of the Revolution.

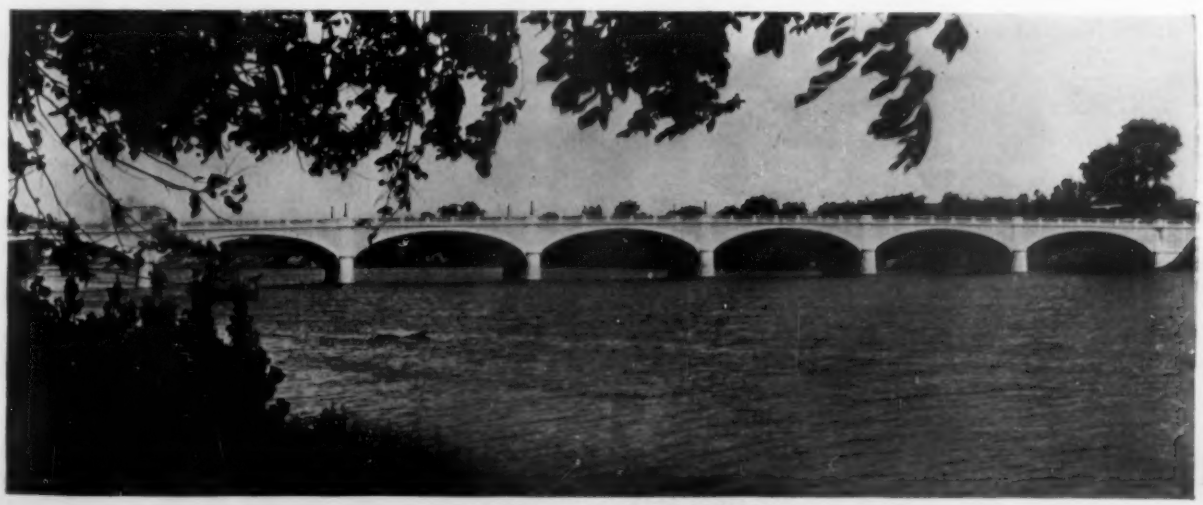
Located between Toledo and Fort Wayne on U. S. Highway No. 24, which runs from Detroit to Kansas City, the new bridge also serves Ohio State Highways Nos. 33 and 34. It is a reinforced concrete arch bridge with seven 95-foot clear spans, a 36-foot roadway, and two 5-foot sidewalks. Railings and balusters are of pre-cast concrete. Piers and abutments went 2½ feet into solid rock. The project involved 18,000 cubic yards of excavation. Materials included 460,000 pounds of structural steel, 67,000 sacks of Universal cement, and 314 loads of granulated slag to fill the spandrels. The concrete for footings and piers was placed by cold-weather methods—amid 14-below-zero temperatures. Passing aviators will find "Napoleon" spelled with brick in the bridge pavement. Selection of the Miller-Taylor Construction Co. of Waterloo, Iowa, as builders brought "Napoleon" and "Waterloo" together again.

An unusual engineering requirement was the moving of a fifty-year-old, three-span, wooden-floored narrow bridge to one side to keep it serving traffic during the 19-month construction period, which ended on May 7, nearly 5 months earlier than the date specified. One span at a time was pulled 150 feet downstream, sidewise, by means of a four-way block, on its pairs of trestle-supported greased steel rails.

School children—and even aging pioneers who hadn't been downtown in twenty years—crossed the river via rope-supported ferry during the nine days of "moving." The old bridge then began doing business as usual, thanks to support from temporary piers built of piling and filled with riprap and stone. Two of the three spans later found a permanent home still farther downstream, in connecting Indianola Island, near Toledo, with the shore. This bridge, by the way, had a designated capacity of "twenty cattle."

A still older structure, a wooden bridge on the site of the new concrete one, had been taken out by ice in the seventies. Local traditions say that a priest, Father Pitz, heroically roped a free end of the departing bridge to his apple tree, but only lost tree as well as bridge in a new barrage of ice.

Modern heroism in the Maumee valley perhaps includes the Napoleon Kiwanis Club's devotion to the new bridge project. Its 50 members averaged five hours each of house-to-house campaigning for bond issue votes on a rainy day that was said to be wetter than Lake Erie!



THE $300,000 BRIDGE COMPLETED

# How Shreveport Is Developing an A-1-A Airport

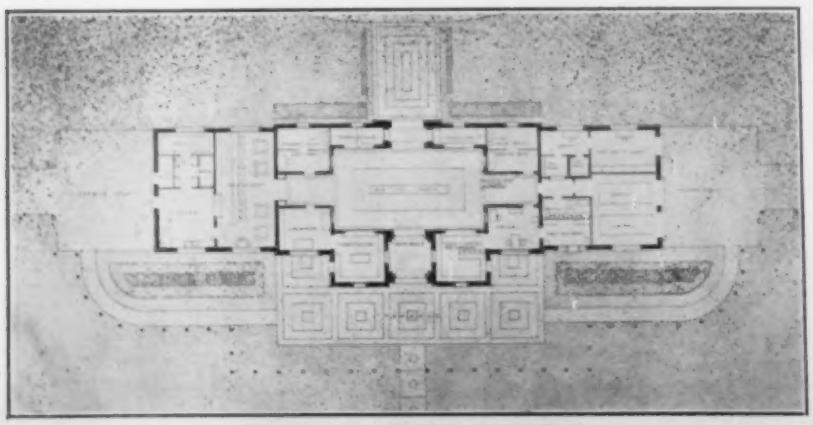
*By* **SAMUEL G. WIENER, A.I.A.**

SHREVEPORT, LA., is fortunate and almost unique in having an ideal site for an airport. This is now being developed to meet, and even exceed, the recommendation of the Department of Commerce for an A-1-A airport. The size of the field, the hangar, the terminal building and the floodlighting are all improvements over the governmental requirements for the highest rating.

The site of the Shreveport airport consists of 300 acres lying near a main highway just outside the city limits, less than two miles from the main business and hotel section. The area is approximately in the form of a rectangle 4,500 feet by 3,000 feet, with the long dimension in the general direction of the prevailing winds. Although the field is near the Red River, it is high enough to be safe from flooding. The drainage, sodding and conditioning were done under the supervision of the City Engineer, H. E. Barnes, who designed the system of sub-soil drainage supplemented with a small amount of grading. Paved runways will not be necessary, because the soil, known as Mississippi gumbo, will yield an abundant growth of Bermuda grass, which produces a durable sod surface.

### Building Program

The present building program includes the erection of a terminal building, an all-steel hangar, and a complete lighting system, and is being carried out by Jones, Roessle, Olschner and Wiener, architects and engineers, of Shreveport and New Orleans.



THE TERMINAL BUILDING FLOOR PLAN

On one side the terminal building faces the public highway which runs along the property line of the port, while the other side faces the passenger loading platform. Passengers can pass directly from the road through the waiting room to the terrace facing the loading platform. Adjoining the waiting room are the ticket office, baggage room, manager's office, rest rooms, telephone and telegraph facilities, cigar stands and other concessions, as well as a restaurant. The ambulance and fire-truck room, first-aid room, the switchboard and transformer room and the mail room are also on the first floor.

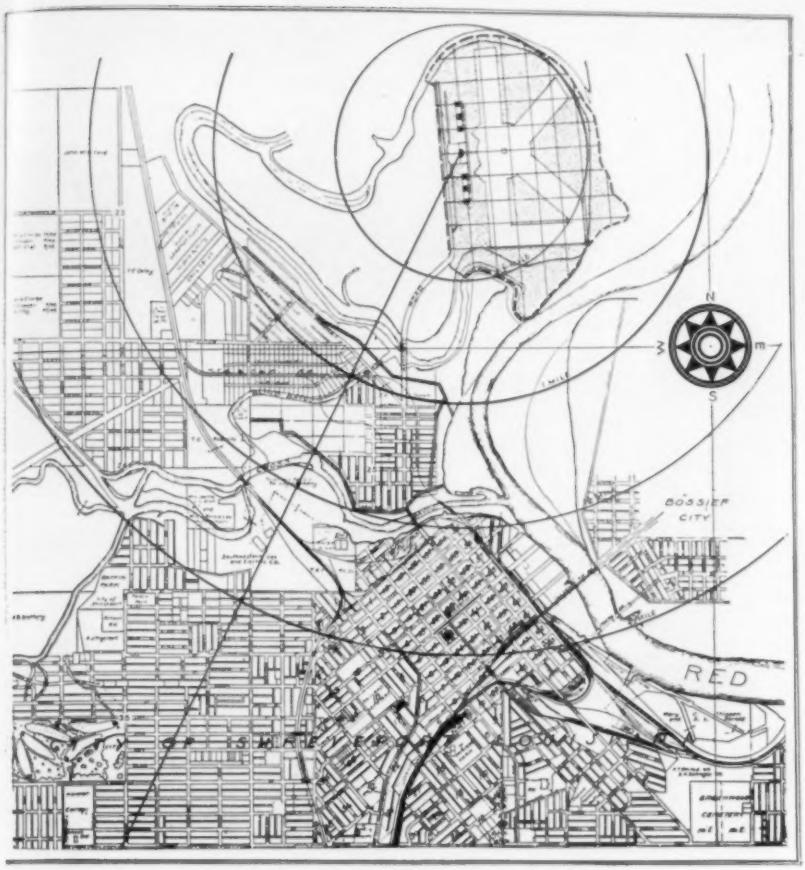
Above the wings of the first floor are roof terraces for public use during aviation shows. Besides offices, including the field-control room, radio department, and Government weather department, the second floor contains sleeping quarters and a lounge for the use of pilots. From the 60-foot observation tower which extends above the center of the building, a revolving beacon will serve as a guide to pilots at night. The tower is built of aluminum panels on a steel frame, and the entire building is of fireproof construction, stucco and black and gold terra-cotta trim.

The hangar, 100 by 120 feet, will be located 500 feet north of the terminal building. Doors opening on two sides will facilitate the handling of planes. The floors and aprons will be concrete. A shop, locker room, toilets, showers, and office space will be provided. A Morse-code flashing beacon on the hangar will be a feature of the lighting system, and ten-foot lighted letters designating the field will be placed on the roof.

Floodlights which will throw a light for three-quarters of a mile will illuminate twice the area required by the Department of Commerce for A rating in lighting. A ceiling light projector and indicator will give the height of the clouds above the ground, and floodlights on the hangar will illuminate adjoining areas.

### Approximate Budget

The following approximate budget includes all expenses necessary for the purchase of the property, con-




LOCATION MAP, SHREVEPORT AIRPORT

ditioning, building and equipping the complete airport:

| | |
|---|---|
| Cost of property | $150,000 |
| Grading and conditioning field (sodding) | 18,000 |
| Drainage | 23,000 |
| Road work | 17,000 |
| Fencing | 2,000 |
| Water and sewerage service | 1,500 |
| Concrete work | 5,000 |
| Terminal building (furnished) | 36,500 |
| Municipal hangar | 22,000 |
| Airport lighting | 9,500 |
| Architectural and engineering service | 4,500 |
| Shop and field equipment | 3,000 |
| Incidentals and contingencies | 4,000 |
| Unappropriated | 4,000 |
| | $300,000 |

Municipalities considering the erection of an airport should bear in mind the fact that conditions vary to such an extent that the budget for one port can serve only as a very general guide. Many cities have made the mistake of granting an appropriation before making a complete survey of the conditions affecting the site in question.

**Airport Architecture and Construction**

See pages 773-784 of the 1930 Municipal Index for an article on this subject by Charles J. Ernst.

# Bonfires or Pavements?

## *Enthusiastic Celebrations of Youngsters Often Disastrous to City Streets*

IT was not uncommon in the past for all the youngsters of the neighborhood to get together and build a huge bonfire to celebrate the night before the Fourth, New Year's and other national events. Before our cities became so closely built up, there were plenty of vacant lots as sites for these celebrations. Our cities are now almost devoid of vacant lots, but the spirit of Young America continues to demand its celebration, offering considerable trouble from bonfires built on asphalt pavements, which tends to ruin the pavement by burning out a considerable portion of the asphalt content.

Last Fourth of July, the city of Providence, R. I., developed a scheme for overcoming these costly celebrations. On the night before the Fourth, no less than 76 street fires were squelched by the Department of Public Works, either before they got started or in their early stages.

For several years, according to Frank E. Waterman, Commissioner of Public Works, Providence has been paying heavy toll to Fourth of July celebrators through the destruction of its asphalt pavements. These blazes drew the life from the asphalt, which had to be replaced later at a considerable expense to the city and annoyance to the Highway Department. This year an alliance was formed between the Police Department and the Department of Public Works and it was arranged that in any locality where the police found preparations going on for a bonfire, the Highway Department and the municipal incinerator would be notified immediately.

The plan worked like a charm. In most cases the carts from the departments swooped down upon the spot where fires were being prepared, loaded on the boxes and barrels and departed before the celebrators had time to realize what was happening.

In this way 76 fires were either totally prevented or extinguished in their early stages. It wasn't all so easy. In many cases the trucks were busy cleaning up and loading the débris when youngsters were still arriving with everything from a stick of wood to a baby carriage for the pile. In most cases the reaction was more or less pathetic, as the boys stood by with pained faces and watched the carting away of their fun, so patiently and laboriously prepared. In some cases resentment of the invasion was shown, and one truck driver carried a black-and-blue mark on his back, from a cobblestone hurled by a wrathful youngster.

Every truck that went out came back with a real load of inflammable material which was found excellent later for the uses of the incinerator.

Plans are now being formulated to cope with the ever-elusive youngster next year.

# A Carefully Designed Garden Theater

*By* CLARENCE E. HOWARD
**Consultant, Planning, Parks and Recreation Commission, Syracuse, N. Y.**

THE transformation of the 76 acres of the Davis private estate, Thornden, into a modern public park has been one of the most outstanding accomplishments of the city of Syracuse. Recent completion of the garden theater was the climax of this accomplishment.

Since 1921, when the property was acquired by the city, for $149,000, a definite program has been carried out, following a general comprehensive plan prepared by the Planning and Parks Commission. The varied features of this plan provide entertainment and enjoyment to suit the tastes of all the public. The Athletic Field was first completed, then the Rose Garden, next the Swimming Pool and lastly the Open Air Theater, which has replaced a muddy wading pond, the remnant of the old mansion's water-supply.

It was not until the first of May this year that active work was commenced on the theater by the Park Department, although some temporary filling and drainage were done the previous fall to eliminate the unsightly and unhealthful conditions. Little excavation was necessary, and much of the natural foliage has been left undisturbed. Favored by unusually good weather, the whole construction, including the planting, was completed in less than three months' time, so that on July 20 the theater was available for use for a united religious service attended by some 500 people. Actual dedication ceremonies were held July 21 before an audience of over 5,000.

The bowl of the theater is semi-circular in shape, preserving the original lines of the old reservoir, and has the stage across its base. In the center, directly in front of the stage, is a circular space 100 feet in diameter, covered with turf and nearly level, for dancing exhibitions, etc. This area is also usable for chairs or benches when the performances are given on the stage. From this central space, on an easy gradient, rises in traditional Greek form, a series of six rock-faced terraces, each supporting two rows of fixed benches made of plank on concrete standards. On the benches over 2,300 spectators may be seated, and an additional 1,700 may be accommodated in the central area.

The stage measures 75 feet in width and has an average depth of 30 feet. The sloping floor is of wood, double thickness, carried on brick walls and steel, and is raised about 4½ feet above the floor of the bowl. Backing the stage are various kinds of evergreens, but the intention is to substitute an *arbor vitae* thick wall planting which will be trimmed in formal lines to properly carry out the architectural design. Underneath the stage are ample dressing-rooms, toilets and storage space. Around the entire exterior is a 6-foot metal picket fence to protect the prop-

erty and to facilitate the handling of crowds.

For use at night special floodlighting has been installed in addition to the general illumination required for circulation; and next year for stage use a vertical light curtain will be in operation to screen the scene-shifting between acts. Although the natural acoustics are such that a speaker on the stage may be heard by those on the rear upper rows of seats, a modern system of amplification will be available for special occasions.

It is difficult to predict the many uses to which this theater will be put, but so far, the entertainments given have included, among others, band concerts, a playground fiesta, a local amateur vaudeville performance, and a concert by the University Symphony Orchestra.

In view of the fact that most of these performances have filled the theater to capacity and that for next year several requests have already been made for places on the schedule, the city of Syracuse feels that the expenditure of approximately $18,000 for this means of entertainment has been well made.

# Organized Transportation as a Factor in Traffic Safety

*By* CHARLES GORDON

IN all discussions of traffic difficulties and highway accidents there is a tendency to overlook organized public transportation as an important and constructive factor in the problem. Not only does organized responsibility set an example in careful selection and training of men, but every passenger on a street car or railroad is a potential individual driver on the streets and highways. Anything which stands in the way of permitting these companies to improve their facilities and service so as to hold present riders and to attract new, will increase the number of individuals driving upon already crowded streets and highways.

The public's desire to move about from place to place —its riding habit—has been greatly increased. That desire cannot be checked. It is also accompanied by a demand for increased comfort, convenience, speed, and even luxury, in travel facilities. There is nothing to prevent public transportation agencies from keeping pace with the growing demand and changing standards, provided the public itself will understand the importance of the function performed by these agencies, and will lend that degree of cooperation which is essential for their continued development. Unless that it done, we may expect a continuance—and, in fact, an increase—in the demand for more and more street space for individual vehicles, accompanied by increasing, not decreasing, accident figures.

Perhaps we could understand better the degree to which organized transportation is capable of aiding in reducing our total travel accident toll, if more direct comparisons were available of the actual performance of our several classes of transportation in terms of service rendered and accidents occurring. . . . So I have endeavored to put together the best figures available in the hope of obtaining a standard of measurement which would give a clearer insight into present travel accident conditions for several transportation agencies. Unfortunately, we are forced to abandon at the very outset any serious effort to base this comparison on accidents as a whole, or even those involving personal injury. But it is possible to set up an approximate comparison on the basis of *fatalities.*

As a measure of utility, or service rendered in the movement of people, the passenger-mile gives a fair unit. That is to say, the number of passengers moved by any given form of transportation, multiplied by the average number of miles each passenger travels, is the number of passenger-miles and is a measure of transportation service rendered. For a more complete comparison based on total service rendered, we should also measure ton-miles of commodities moved. It is difficult, however, to divide available accident figures between freight and passenger movement and so I have based the comparison solely on the passenger unit. This is not unfair to highway traffic, because freight represents only a comparatively small proportion of the total mileage on the highways and I have credited as passengers the drivers and riders in motor-trucks.

### Fatalities by Automobiles, Railroads and Street Cars Compared

Estimates of total automobile mileage on our streets and highways can be built up only from the statistics of automotive gasoline consumption, separately for busses, trucks and private cars. The resulting totals are huge indeed—162,000,000,000 automotive vehicle-miles per year and 323,000,000,000 automotive passenger-miles per year. The passenger-miles per year for steam railroads are 31,078,000,000, and for street cars, 34,167,000,000.

Total automotive fatalities are 31,000. Of these, 600 are in collisions with street cars, leaving a balance of 30,400 chargeable to the automotive vehicle, exclusive of accidents involving street cars.

Railroads killed 6,218 people in 1929 in train and train-service accidents. Of these, 2,078 were killed in grade-crossing accidents with automobiles, and 2,251 were trespassers. Thus, fatalities, exclusive of automobiles and trespassers, were 1,889. This figure, however, includes fatalities chargeable to freight as well as passenger train operation.

Total street-car fatalities for 1929 were 1,583. Subtracting the collisions with autos leaves 983 fatalities chargeable to street cars, exclusive of collisions with automobiles.

Coming now to number of passengers killed, the 1929 figures are as follows: automobiles, estimated at 15,500; steam railroad, 115; street cars, 75.

If we consider passenger-miles carried per year as a measure of the economic or social usefulness of each form of transportation, then the number of passenger-miles per fatality gives a rough measure of both usefulness and the accompanying hazard to which each form of transportation subjects the general public. Likewise, passenger-miles per *passenger fatality* measures the hazard to *passengers* actually riding on each form of transportation. The public hazard figures are as follows:

| Type of Transportation | Passenger-Miles per Fatality |
|---|---|
| Autos | 11,400,000 |
| Railroads | 16,450,000 |
| Street cars | 34,760,000 |

In other words, for an equal amount of passenger service given, only about two-thirds as many people are likely to be killed by railroads as by automobiles on the basis of present performance. It should be remembered also that railroad fatalities include those chargeable to freight as well as passenger service. For this reason the figures are not fairly comparable and the railroad data are included here only for information.

For the same number of passenger-miles of service, one-third as many people are likely to be killed by street cars as by highway vehicles. This includes pedestrians, employees and all forms of street fatalities.

### Hazards to Passengers

When the hazard to *passengers* only, measured in terms of passenger-miles per *passenger fatality*, is compared, the results are even more striking. The figures are as follows:

| Type of Transportation | Passenger-Miles per Passenger Fatality |
|---|---|
| Autos | 20,840,000 |
| Railroads | 270,240,000 |
| Street cars | 455,000,000 |

If the results of averages of this type could be applied to measure the individual hazard, these figures would indicate that in covering a given distance a rider in an automobile is 13 times as likely to be killed as on a railroad train, and 22 times as likely to be killed as a passenger in a street car.

Here is a concrete comparison of the relative safety of the older forms of organized transportation and the newer traffic on the highways, based on a common unit of transportation service rendered—the passenger-mile. The figures must of course be accepted as entirely tentative because of the obvious approximations that are made in compiling the data for highway traffic.

Nor is the status of organized transportation as a factor in traffic safety completely developed. To do so requires that the operation of busses, taxicabs and trucks be separated from the individually owned car and that accidents chargeable to passenger transportation be distinguished from those chargeable to the movement of commodities.

Despite these obvious limitations in the analysis presented, the performance of the older forms of organized rail transportation is so striking in comparison with that of highway traffic as a whole, that it challenges our attention from the purely humanitarian point of view.

—From an address by the Managing Director of the American Electric Railway Association, before the 1930 National Safety Congress, Pittsburgh, Pa.

## "Rural Municipalities *Must* Come"

WHAT chance has the small rural community of realizing a fine, well-rounded community life? This is a question Dr. C. J. Galpin, sociologist, of the United States Department of Agriculture, proposed at the meeting of the American Country Life Association in Madison, Wis.

His own answer is "None. Absolutely none."

"From the community point of view—that is, from the point of view of providing for its farm families all the institutions, facilities and opportunities for education, health, recreation, fire protection, information, religious instruction and the like, which modern communities now provide their citizens—" he elaborated, "the small farm community is doomed, *and doomed on account of its smallness.* Nor is there any other reason for this doom than its smallness. It has too few families in it. It has too little an area of land and property within its boundaries. *And this is the bare, bald fact without glossing the matter over.* . . .

"I do not expect a farm community to be as large as a city of 100,000 people; nor do I expect it to provide for its citizens as many facilities for living as such a city does. But I do hold that a farm community of 100 farms and 100 families, like the 36-square-mile township of Wisconsin and Iowa, is too small. In fact, 200 farms and 200 farm families in Wisconsin and Iowa are too small for a modern community. Not people enough! Not property enough! . . . I do not think I shall be far out of the way when I say that it will take, per community, 1,000 rural families with all their property comfortably to carry on modern community enterprises in the states of Wisconsin and Iowa.

### The Remedy

"I am bold enough to say that the property and income of the present farm families are entirely adequate to give these families a decent minimum of up-to-date community advantages, providing that the present small communities were consolidated—united, perchance, with the village and town families situated in the farmers' trading villages and towns, so that at least 1,000 families were banded together—both people and tax-producing property—to maintain and support schools, libraries, hospitals, parks, playgrounds, churches, fire companies, and the like.

"You have already in many cases taken your small school districts and consolidated them into a large enough district, or, so to speak, school community; but you have stopped there, worn out, perhaps by the struggle to produce a big enough school. You found the way to change your school district by legal means. You passed a state law. Then you got the proper number of people and areas to accept the conditions of the law. Now, can you not go on in a similar way and get a state law which will enable you to carve out communities of at least 1,000 families, to carry on all community enterprises? Surely you can. You are already trying various makeshift and substitutes for such a single community. You are trying to use the cumbersome machinery of county government as a makeshift.

"While you are laboriously using many substitutes for community home rule, see how your city brethren go smoothly on with their incorporations of 5,000 people, 6,000, 7,000, 10,000, with a compact piece of landed territory, very irregular in shape, it is true, but sufficient to provide a decent standard of comfort, intellectual advantage, and protection against many common ills. Why do you think that you cannot have single, great, modern communities also for farm families? . . . .

"Even your present income can give your families a good minimum standard of living, providing that you will insist on having for each familiy a single great rural municipality adequate in number of persons and tax-producing property to maintain modern institutions. Furthermore just as you have seen fit to make consolidated school districts a part of your fundamental state law, you can make adequate rural municipalities a part of your state law also. You need not go on forever with a community which is too small and which pinches and victimizes your growing children."

BUILDING THE ROAD WITH CONVICT LABOR
1. The batcher plant and stock piles. 2. Setting forms on a curve. 3. The mixer and concreting crew

# A Concrete Paving Project Manned with Convict Labor in Alabama

*By* **A. L. BYRD**
**Resident Engineer,**
**State Highway Department,**
**Wetumpka, Ala.**

IN Alabama this summer there was completed an unusual paving project, the unusual character of it being that the work was done entirely with convict labor. On this job the crane operator, bintenders, mixer operator, tractor driver, finishing machine operator, concrete finishers, form setters, and all common laborers were convicts. All these men were entirely without experience in this class of work at the beginning of the job and, as the initiated will understand, it was not a bit easy to get much work done. An experienced superintendent was in charge, and with the assistance of the engineer and inspectors, the men were in time taught to understand what each was supposed to do, and a fair rate of progress was attained.

The project was advertised and bids called for in the usual manner. Among the bidders, the Convict Department was found to have placed the lowest bid and was awarded the job. A regular contract was made with that department by the Highway Department just as would have been done with any other contractor. The contract was made and the work done under the standard specifications of the State Highway Department. Supervision and inspection were quite as rigid and thorough as they would have been with any other contractor. In Alabama the State Highway Department and the Convict Road Department are entirely separate.

### Equipping the Job

Before the equipment was unloaded, a track siding was built at the site of the batching plant, where all materials that were used on the job were unloaded. A 150-ton Blaw-Knox double steel bin equipped with scales was used for proportioning aggregates, sand and gravel, which were unloaded direct from the cars to the bin after the crane operator had learned that the crane was intended for this purpose and not to be used as an instrument to overturn the bin. Weather conditions were so bad that it was necessary to carry an exceptionally large stock pile to care for irregularities in delivery. Cement in bags was delivered to the same siding and loaded in unopened bags on top of the aggregates, and was not opened until just before the batch was discharged into the hoisting skip of the mixer. The batch truck was turned on a turn-table and the batch dumped direct into the skip of the mixer.

### Concreting and Finishing

A 27-E mixer was used, the concrete being dumped, spread, and cured as usual on the average job. A finishing machine was used to strike off the surface of the green concrete on 18- and 20-foot widths. Following the finish-

ing machine, a medium-weight 10-foot straight edge with a long handle was used as a squeegee to check the surface and to remove all small ridges left by the finishing machine. Any depressions shown by the straight edge were carefully filled and the finishing machine brought back over that section. Following this, the surface was rolled with a Macon roller and then floated with a 10-foot wooden float and belted to remove the surface water. A piece of burlap was then dragged longitudinally over the surface to give the appearance of a brush finish and to remove all small transverse ridges made by the belt. This method of finishing left a surface which rarely showed a ridge of more than ⅛-inch, which was a permissible error allowed by the specifications.

### Removing High Spots

All work of the day before was carefully checked as soon as the burlap was removed, and any high spots which could not be removed with the blade of a square-pointed shovel were rubbed down with carborundum bricks. By checking early, it was found that the shovel could get most of the few ridges found, as the concrete was still soft enough to cut, thus saving a bit of laborious rubbing.

### Boulevarding Through the Town

On all 18-foot widths a standard Bates section with a longitudinal steel center joint and ¾-inch marginal bar reinforcement was used. On that part of the job for about ¾-mile through a small town, a combined curb and gutter was already in place. In this section a grass plot was left in the center of the street, which was 80 feet wide, as traffic was not heavy enough to justify paving the whole width. A 24-foot driveway was made on either side with frequent cross-overs. This was hand finished and no center joints or reinforcement were used, as there was a curb on both sides and the cross-section of the pavement was made so as to to be able to pave the center strip and give a crowned section for the total width in the event that the future traffic should justify it.

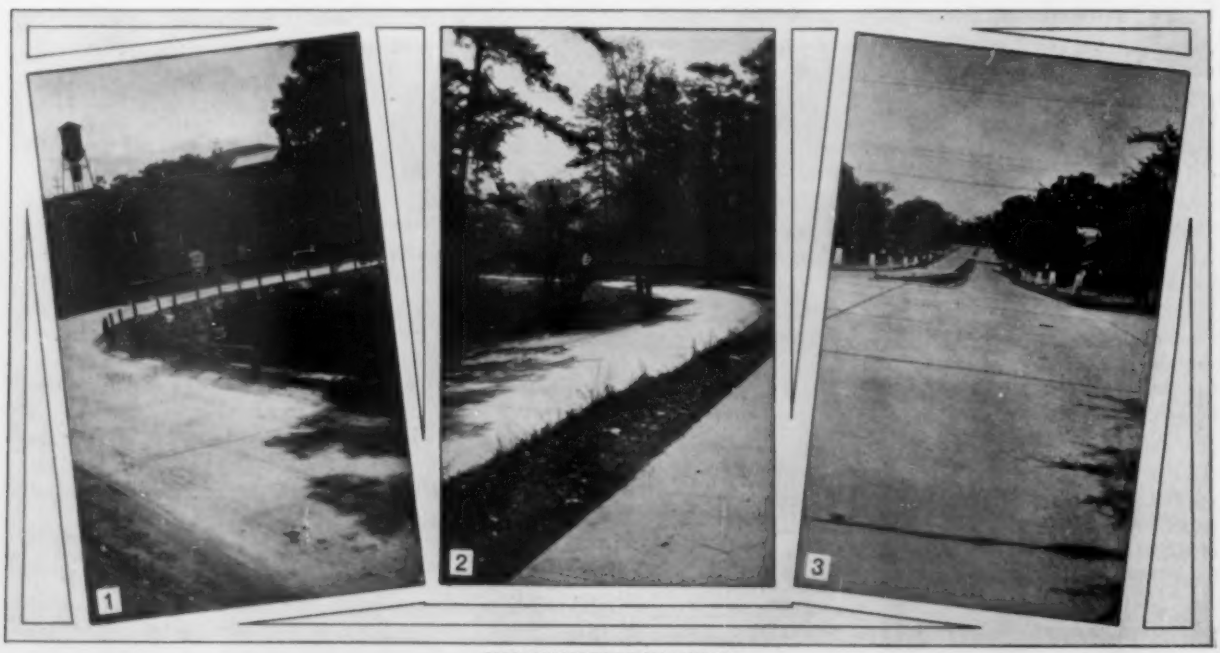
### A Designed Mix

The mix was designed in the testing laboratory of the Alabama State Highway Department, a 94:185:320 dry weight mix being recommended to give a 3,000-pound concrete in 28 days. The Alabama Power Co. had a field laboratory at one end of the paving job which was available for use by the resident engineer, and it was used to advantage. Test cylinders showed that the field mix was giving a stronger concrete than specifications required, and the mix was changed in the field, thereby effecting a saving sufficient to pay the resident engineer's salary.

At the bridge head, and for 700 feet away, where the roadway was located between two rock cliffs, making a detour impossible, high early strength cement was used. On this section the roadway was paved 24 feet wide and one-half was used by traffic while the other half was being paved. Cylinders were made, and broken every six hours until they showed that the pavement had gained sufficient strength to handle traffic. The test showed a strength of 2,800 pounds developed in 30 hours. The setting time of this cement was delayed somewhat by temperatures which hovered between 58 and 60 degrees.

### Costs

Because this job was handled during the worst weather that has been experienced in the South for many years, the costs ran above what was expected. When it is noted, however, that a 6-inch standard concrete pavement can be laid in bad weather with convict labor at a total cost of less than $1.38 per square yard and of a quality to compare with any job anywhere, then other states with a large number of convicts and a small mileage of paved roads may profit by Alabama's experience. It is genuinely hard work to build up the organization, but many worth-while jobs are difficult. The convicts like to do this work much better than some other kinds because they can see the evidence of their labor and find it good. Not a single runaway occurred during the job.




THE COMPLETED HIGHWAY

1. The same curve as shown in the center of the first illustration after concreting. 2. A 35-degree curve. 3. The street through the town, showing the center strip unpaved

# More Equitable Tax Assessments for Rich and Poor

*By* EDWARD A. McCARTHY
President, Municipal Service Company, Inc.
Hartford, Conn.

GREENWICH, CONN.—the de luxe town over the state line from the metropolis—has often laid claim to the title of being the richest town in the United States. Its palatial estates are known far and wide. It has within its borders not a few millionaires, and the latest "Who's Who in America" lists no less than sixty-nine residents of this colorful municipality.

Undoubtedly one of the most difficult towns in the country to assess for taxation purposes, it has just emerged from a disinterested revaluation of its taxable property that has increased its "grand list" from $121,000,000 to $192,396,490—or more than 57 per cent. Some of the individual increases in valuation amount to more than a half-million dollars. This revolution in assessments was brought about by the assessors, assisted by outside appraisers, in their effort to bring valuations to approach the "fair market" rule spoken of in the statutes. At the same time, it should be pointed out that other valuations, previously too high, were reduced.

The records of the State Tax Commissioner's office of Connecticut show that prior to the completion of the Greenwich re-appraisal, the highest per capita assessment was that in the town of Morris—$4,600 per person. Greenwich, at that time, was shown to have a per capita assessment of $3,383—or the sixth highest town in the state in this respect. As a result of the new adjustment of values in this town, the per capita assessment now reaches more than $6,000, and, to all appearances, Greenwich moves into first place in Connecticut in this regard.

Some high spots in the work may be worth pointing out. For example, in 1910, the total grand list of the town was $36,549,822. In 1920, it amounted to $54,240,859. Now, in 1930, it is shown that the current grand list aggregates $198,346,690—an increase of 62 per cent over 1929, 266 per cent over 1920, and a total of 450 per cent over the 1910 grand list.

The strange part of the re-appraisal in Greenwich is that it has been brought about with a minimum of discord, and, while sitting during the month of October, the board of relief listened to only 85 complaints, reducing the grand list $1,712,935. Hundreds of property owners, however upon invitation from the assessors and the appraisal organization, have made their way to the Town Hall to inquire into the methods used and the reasons for the radical revision in assessments. After obtaining the desired information, in almost every instance, the taxpayers, even those who had been informed of increases ranging as high as $500,000, left the Town Hall satisfied that the revaluation had been carried

*Fairchild Aerial Surveys, Inc., N. Y. C.*

THE AERIAL MAP IN TAX APPRAISAL
The two views above show the type of mapping suggested in this article

on in a wholesome way and that the effort of the assessors and appraisers who assisted them had been to bring all property to a common level, which was as near as could be to so-called "market value."

In the following group, illustrative of the revision in assessments that marked the high-class palatial residences, it is observed that the increase amounted to an average of more than 52 per cent and ranged as high as 268 per cent.

| | 1929 Value | 1930 | Increase |
|---|---|---|---|
| A..... | $1,310,059 | $1,801,455 | $491,396 |
| B..... | 1,152,310 | 1,170,110 | 17,800 |
| C..... | 660,090 | 1,123,350 | 463,260 |
| D..... | 364,360 | 1,057,110 | 692,750 |
| E..... | 236,965 | 343,785 | 106,820 |
| F..... | 96,740 | 205,710 | 108,970 |
| G..... | 64,980 | 239,280 | 174,300 |
| | $3,885,504 | $5,940,800 | $2,055,296 |

On the other hand, it is observed, from a random examination of the revision in the assessments of the moderate-priced places, that in seven cases the average increase in assessment is 29 per cent, as shown in the following table:

| | 1929 Valuation | 1930 | Increase |
|---|---|---|---|
| A..... | $5,700 | $6,380 | $680 |
| B..... | 5,080 | 7,330 | 2,250 |
| C..... | 6,280 | 8,340 | 2,060 |
| D..... | 4,450 | 5,600 | 1,150 |
| E..... | 3,600 | 5,550 | 1,950 |
| F..... | 7,600 | 9,800 | 2,200 |
| G..... | 5,000 | 5,660 | 660 |
| | $37,710 | $48,660 | $10,950 |

Estimates already made in Greenwich indicate that the present 19½-mill tax rate may be replaced by a 12-mill rate, as a result of the new grand list.

### How the Work Was Done

The first requirement for a comprehensive tax equalization is the possession of accurate and detailed maps. Greenwich, like most Connecticut towns, had never been wholly surveyed and mapped. This necessitated the making of an aerial map of the entire 48 square miles. The original contact prints were taken from an altitutde of 7,200 feet, at a scale of 600 feet to 1 inch. These were enlarged to 100 feet to the inch, and each parcel of property was delineated upon these enlargements, showing the frontage and depth in the business and residential areas and the acreage in the suburban areas.

The assessors, assisted by the Greenwich Real Estate Board and the appraisal company engineers, determined the market value per front foot based on a standard lot 100 feet deep on each street, and, also the value per acre on each street or road in outlying sections.

Using these basic prices, the value of each individual parcel was determined, allowing a depreciation from the base price for land requiring filling or cutting, ledge, swamp, scrub, etc. All parcels having a greater or less depth than the 100-foot standard lot were increased or decreased according to a scientific depth scale. For instance, a lot having a depth of 200 feet would be computed at 122 per cent of the base rate. A lot only 50 feet in depth would be computed at 72 per cent of the standard rate. Such a scientific depth table is in use in all modern assessing offices and represents the only accurate method for arriving at the relative value of lots of varying depths.

With respect to building, each was carefully measured, and the square-foot area, number of stories, number of rooms, type of construction, exterior and interior finish, heat, light, plumbing, special features, age, rental and general condition noted on a card. A unit price was applied to all buildings, based on the replacement cost for each particular building. Depreciation was then allowed for age, obsolescence, lack of utility, location or any other factor that might affect the value, so that the final result would be the sound market value.

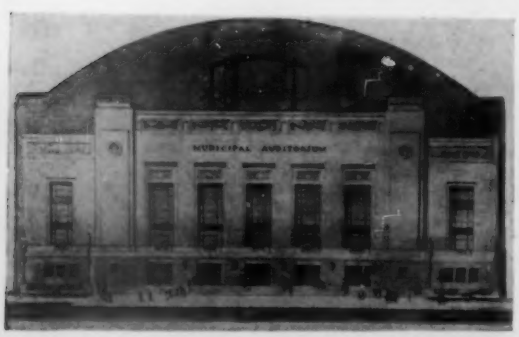
These unit prices were graded for each type of construction, such as wood, brick, and stucco, and also according to workmanship and improvements.

Public hearings were held on the basic land values to permit taxpayers to register criticism, if any, before the individual parcels were computed. Upon the completion of the land and building appraisal, every taxpayer was notified of his or her increase or reduction and invited to come to the assessors' office, obtain an explanation of the method employed in arriving at the assessments and compare his or her appraisal with that of neighboring or similar property.

Accompanied by a complete set of aerial maps, at a scale of 100 feet to the inch, the Greenwich revaluation brings to the town a complete card system showing all pertinent data with respect to every single parcel of property in the town. There is the customary street card, containing a detailed description of all parcels of property on every street, with size, shape, etc., of lot; dimension, type of construction, unit price, etc., of all buildings, together with an alphabetical file which shows the property holdings of all individuals regardless of location.

Many towns in Connecticut have undergone the revaluation operation in the last decade. It is doubted, however, whether the problem was ever met with more cohesion and cooperation than was the case in Greenwich. The Greenwich Real Estate Board lent its support, the town officials and taxpayers of Greenwich were quick to join in the movement for a modern readjustment of values, and the net result has been that the public seems satisfied.

## A $5,000,000 Auditorium for Philadelphia



TWENTY years of endeavor on the part of prominent citizens and public officials of Philadelphia were rewarded with definite promise of early fulfillment recently when the cornerstone was laid for a $5,000,000 municipal auditorium and convention hall. Ultimately this structure will have a seating capacity of over 14,000. The main assembly rooms will, it is anticipated, be ready for use early in the spring of 1931.

Mayor Harry A. Mackey has characterized this achievement as "the municipality's outstanding example of complete coordination between business men and administrative forces." He heartily commends the great opening exposition of Philadelphia-made goods for which plans have been under way for many months.

# Better Land Condemnation Appraisal Methods

To the Editor of THE AMERICAN CITY:

W. C. Bernard, in his "Proposal to Improve Condemnation Procedure" in THE AMERICAN CITY for October,* recommends an administrative reorganization of (1) the manner of determining damages and (2) the assessment of improvements.

It seems to the writer, however, that the thing that is most needed to improve condemnation procedure is a more effective method of appraising the property required for public use. Perhaps readers of THE AMERICAN CITY will be interested in the story of how the city of Camden, N. J., made satisfactory purchases of land and buildings comprising 67 properties within two central blocks, valued at more than $3,000,000, without resorting to condemnation proceedings except in one case.

The land bought by the city adjoined the block upon which the County Court House stands, and was needed as a site for the new City Hall and for a bus terminal. The original purchase prices of some of the properties, which had been acquired by their owners a considerable time ago, were far below the prices paid by the city. Other properties had been acquired during the recent real estate boom, and the prices paid by the city were below those paid by the owners. The total amount paid by the city of Camden was $3,344,457.11, which included $17,015.40 for costs for moving and payments for unexpired leases, leaving the actual amount paid for real estate alone the sum of $3,327,441.71. Except for six properties owned by a city official, which under the law the city was compelled to acquire by formal court action, the city's representatives purchased by across-the-table negotiation all but one of the properties, and the prices paid were generally considered, both by the property owners and by the taxpayers of Camden, to have been fair and justifiable.

The entire proceedings required but a short time. An appraisal and negotiation committee, consisting of two real estate men and one builder, was named by the City Council to assist Mayor Winfield Scott Price and Commissioner of Finance T. Yorke Smith in the valuation and negotiations for purchase of the properties. The local real estate men first marked upon a block map of the properties to be appropriated their judgment of unit-foot valuations for the streets surrounding the blocks to be taken. These judgments represented opinion as to single-street values for 100 feet of depth which the streets reflected to the land frontages. After unit-foot prices had been determined, the individual lot valuations were computed by land valuation actuaries, the computations showing the enhancing effect over and above the unit-foot valuation effect, of frontage, depth, corner and alley influences for each lot. Building appraisers measured and described the buildings and applied factors of new reproduction cost per square foot of floor space or per cubic foot of contents, and from the total reproduction cost of each building deducted a total percentage of accrued depreciation representing their judgment of the loss of usefulness as indicated by the present condition of each building.

The owners' prices thus secured were compared with the appraisals, and informal discussions were had with the property owners. Where the variations between the owners' prices and the appraisers' were wide, the representatives of the city and the owners met the situation frankly. The property owners were told that the city wished to pay fair prices for the properties and wished to acquire the properties promptly, without appealing to the courts.

It was estimated on behalf of the city that the cost of court condemnation proceedings would have averaged about $2,000 per property, and that the property owners would also be put to heavy legal expenses if it should be found necessary to carry their cases to the courts. Meeting property owners with candid arguments and with definite appraisals behind those arguments, the negotiators fulfilled their task with great success, and with full satisfaction to property owners. In some instances the prices paid were less than the appraisals, and in other instances they were slightly greater. In a majority of instances the exact appraised valuations were acceptable to the owners.

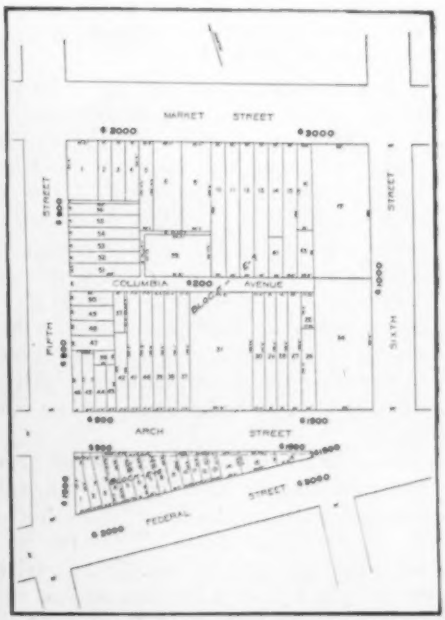
Perhaps the best approach to a solution of present condemnation difficulties would be to require analytical valuations of property to be made by disinterested appraisers on behalf of the court. Such appraisals would be free from the partisanship of testimony of appraisers employed to make the best case possible for buyers or sellers. It might be that such appraisals would obviate the necessity for trial of many condemnation cases.

WALTER W. POLLOCK,
President, The Manufacturers' Appraisal Co., Philadelphia.

Philadelphia, October 15, 1930.

* Page 150.

*Aero Service Corporation*




THE 67 PUBLICLY PURCHASED PROPERTIES IN CAMDEN

THE CIRCLE IN KINGSPORT, TENN

This is where residence and business sections merge, a part of town usually abandoned to unregulated and unsightly development. In accordance with the city plan, however, the above well-planted "hub" is one of the most attractive and important parts of the town

# Where Planned Beauty Blossoms in an Industrial Community

*By* **FRANCES MARY HUGHES**

KINGSPORT, TENN., is a beauty-spot created by men and women of vision. Several years ago a group of New York bankers, headed by John B. Dennis, decided to build up an industrial city on the Clinchfield railroad. The railroad has been put through the mountains at a cost of several millions of dollars, and the idea was to have Kingsport pay back some of this money in the form of products from local factories shipped over the road.

However, Mr. Dennis had more of a vision than that of merely getting money out of the town. He wanted it to be a city beautiful and dignified, not just a revenue producer. He organized, therefore, the Kingsport Improvement Society, and put J. Fred Johnson at the head. He then sent for Miss Lola Anderson, whose home is in Augusta, Ga., asking her to take charge of the landscape work. She replied that that was a man's job, but Mr. Dennis said that the sort of work he had in mind needed the cooperation of all the women in the community, so would Miss Anderson not come? She went, and under her guidance the proverbial desert that was made to blossom like a rose found counterpart in a modern municipality.

The city was laid out by competent planners. The land along the Holston River and the railroad tracks was designed for factory locations. The higher altitudes and the finer outlooks were left for the residential section, while the land lying between the industrial and residential centers was left for a business section.

When passengers alight from the train at Kingsport they find themselves in a park attractively planted with trees and shrubbery. From this park one drives on to a boulevard which is more than twice the width of the average highway. Well-kept parkways flank it, and between the traffic lanes is a planting of grass and flowers. Driving along this boulevard for a quarter of a mile, one comes to the base of a gentle rise. Here the roadway encircles a park development, and this park is at the center of the city. On the little hill above is an impressive grouping of churches and playgrounds, surrounded by lawns, flowers, and shrubbery.

Miss Anderson's touch has been felt everywhere. It was her work to beautify the entire town, and she is doing it. She has laid planting plans for the public buildings (some still to be erected), for the factory, for churches, for schools, for modest homes and more palatial ones. She has planned everything on a scale appropriate to the property. She advises some shrubs this year, and more next if the budget does not permit of all at once. Always she is striving toward the ultimate goal of perfection of beauty. Practically every householder now has in mind a plan of what he is to plant for the next few years.

### Future Development Is Planned

Much has been said about the architecture in Kingsport. Plans for the buildings were made by architects of repute, so that the city possesses a unity not often seen in such a place. Plans were made in the beginning for the needs of the community in the way of various public buildings, stores, library, etc., so that the time will never come when residences have to be torn down to make

way for a business block, or parkways and lawns sacrificed to widen a street which was short-sightedy made too narrow. It is a city with a plan appropriate to its ultimate growth and development. The other day a cow was seen grazing in what appeared to be open country. In reply to a comment on it, Miss Anderson explained that that property had been left vacant for the banks, public utilities buildings, and library that would all come in the course of time.

The people who have come to work in the factory and inhabit the town are mostly mountain folk. They are keenly responsive to beauty as they have always known it among their hills, but they are not skilled to create for themselves a beauty in their own living quarters. It has been Miss Anderson's joy to help them bring this to pass. It is a simple matter to create beauty when unlimited means are at hand for doing it, but it quite another thing to do it with a meager outlay. Realizing this, the Kingsport Improvement Society established its own nursery, and from it plants and shrubs are sold without profit, the profit returning in the additional beauty thus accruing to the community. Kingsport is a town of 12,000 souls, and it has a nursery seldom equaled in a city three times its size. The reason is that everyone in Kingsport buys shrubs. In order to keep the yards in beautiful condition, home owners are urged to consult Miss Anderson. Those who consult her and follow her suggestions receive a liberal discount at the nursery for all plants bought. This of course makes it doubly pleasant and easy to secure expert advice.

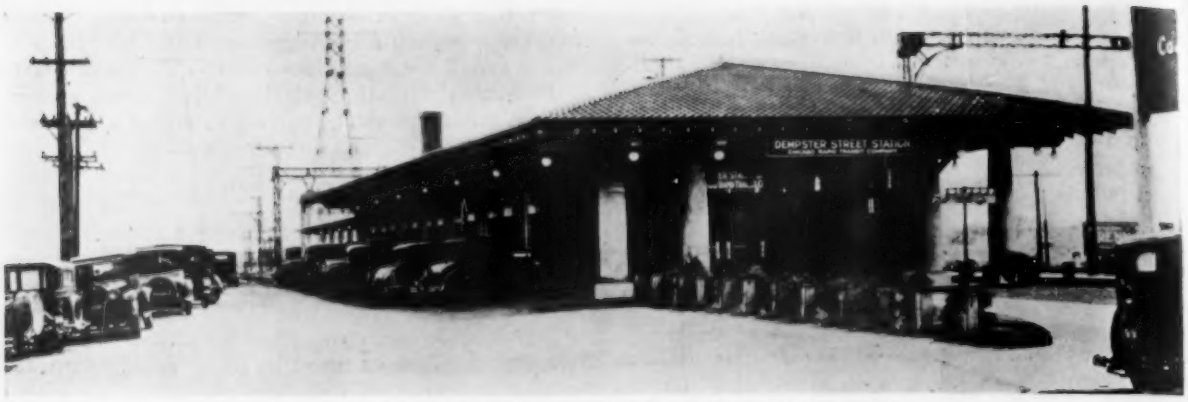
A RESIDENCE STREET
The lowest-cost houses are made as attractive as the more expensive by planting

### Attractiveness That Will Increase

The city has humble homes, many of them, but any lack of grace in outline or building material is softened by vines or shrubs, and the loveliness of the whole is accentuated by the beauty of the lawn. *All* of the lawns are perfect, it seems to the eye of the visitor. And one of the best things about the entire situation is that it will continually grow more and more beautiful. Elms become taller and statelier each year, thereby adding a more gracious and dignified shade to a boulevard. Shrubs mass together with a lovelier effect as the seasons pass; and roses and peonies and other flowering things grow more and more luxuriant. Kingsport affords an excellent example of what can be done with advance planning, and the will to make the dollars which the working man can set aside for making his environment more attractive go as far as they possibly can.

THE KINGSPORT TOWN CENTER

When completely developed, this will contain the governmental and public service buildings. The Post Office unit in the left foreground is now in process of construction. Approximately 200 square feet has been dedicated as a public garden, the development plan of which is shown in the foreground. The architects' drawing is by John B. Dennis. The architects of the group were Carrere and Hastings, of New York. The town has been developed according to plans of John Nolen, of Cambridge, Mass., made before the beginning of the development




DEMPSTER STREET, NILES CENTER, ILL., ON NORTH SHORE LINE

# Parking Places at Electric Railway Stations Help to Relieve Downtown Congestion

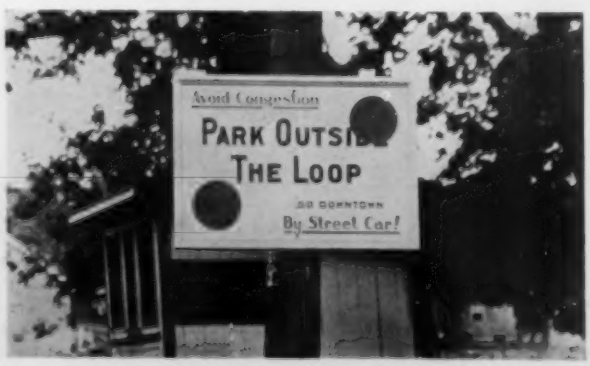
By G. J MacMURRAY

SLOWLY but surely the idea of providing parking space for autoists appears to be taking hold of the electric railways. There are at least a dozen cities in which this practice is being followed, to the alleviation of vehicle congestion downtown. The electric railways recognize the economic place of the automobile in the scheme of things today, but they are not unmindful of the fact that not only is the daily use of the automobile to go to and from business a costly operation but that far too often it is a source of great personal inconvenience to the operator.

It is in the interest of the automobile user that the Chicago, North Shore & Milwaukee Railroad, the Grand Rapids Railroad, the Northern Texas Traction Co. at Fort Worth, the United Railways & Electric Co. at Baltimore, the Northern Ohio Power & Light Co. at Akron, the Poughkeepsie and Wappingers Falls Railway at Poughkeepsie, N. Y., the Boston Elevated Railway, the Philadelphia Rapid Transit Co., the Municipal Railway at Detroit, and the Pacific Electric Railway at Los Angeles, all have arranged parking spaces.

### Advertising the Service

The Chicago, North Shore & Milwaukee Railroad, a prize-winning interurban, noted for the progressiveness of its management, provides free parking space at its stations at Milwaukee, Racine, Kenosha and Ravina on its main line and at eleven stations on its Skokie Valley route. At the time the parking spaces were opened, the company made a house-to-house distribution of a time-table folder in which it advised patrons as to the various stations at which the company parking spaces were maintained. In Grand Rapids the railway provides free parking space at Ramona Park, on the east side of the city, and at three other locations during the West Michigan Fair. Attendants at the parking spaces supply motorists with time-tables and other information about the railway. The Northern Texas Traction Co. established its parking stations to induce patrons who live some distance from interurban lines to use the service. The company reports that the number of autoists taking advantage of the parking space is gradually increasing. At the Handley Station of the company, eight miles from the Fort Worth business district, a neat fence, flowers and shrubberies make the parking space attractive.




A SIGN USED IN DES MOINES

### Some of the Charges

At Baltimore two parking spaces are provided. One of these adjoins the company's shop on Washington Boulevard. The parking capacity there is sixty automobiles. This space is on a main street-car line and in the path of motorists from Washington as well as those from small suburbs inside and outside the city limits. The other parking space is within a loop of tracks on a main car thoroughfare heavily traveled by automobiles from the west and northwest. This company charges 10 cents for the parking privilege.

Success is said to have attended the operation by the Northern Ohio Traction & Light Co. of a garage in connection with its terminal station at Akron. Here auto-

mobiles are checked for 25 cents by persons who wish to continue their journey by interurban to Cleveland, Canton or other cities in which the company operates. Free rides downtown on the trolley are being given by the Poughkeepsie and Wappingers Falls Railway to automobile drivers who park their machines at a cost of 25 cents on a plot of ground belonging to the company on the outskirts of the city opposite the company's carhouse.

### In Boston—Philadelphia—Detroit

So far the Boston Elevated Railway has established only one automobile parking area in the vicinity of its rapid-transit terminals. This space adjoins the Everett terminal. It is not operated by the railway, but is rented for use for automobile parking purposes. The company has, however, encouraged the establishment of parking areas near its rapid-transit terminals and has provided a physical connection between one large garage in Cambridge and the Kendall Station of the Cambridge subway.

Philadelphia has several parking spaces adjacent to its rapid transit and surface lines. The charge there for parking is 25 cents, 15 cents of which is absorbed in the transportation furnished by the P.R.T., and 10 cents for the use of the parking area. The largest of these parking spaces, the one at 69th and Market Streets, has a capacity of 250 cars.

Manager Smith of the Detroit Municipal Railway says that the first parking ground, located at Woodward and Manchester Avenues, with a 10-cent parking charge, is now storing more than 250 cars a day and has been a phenomenal success.

### Des Moines—Los Angeles

Parking yards at suburban car-line terminals under control of the local transportation companies as a relief to downtown traffic jams and as a stimulant to business are proposed for Des Moines. One such space has actually been provided by the Des Moines City Railway, but the plan has not been in use long enough to establish its real values.

At Los Angeles the Pacific Electric Railway permits parking on station properties at more than ten locations. The most popular parking place is at the Sierra Vista Station at the junction of the Pasadena, Glendora and Alhambra-San Gabriel lines of the company. Here about 60 machines are parked daily, their owners completing the journey into Los Angeles via rail.

### An Unsuccessful Trial

The effort of the Pittsburgh Railways to encourage motorists to leave their cars outside of the congested zones and use the electric railway into the center of the city failed. The trial was made on a plot of ground at South Hills Junction, approximately a mile from the city. Parking space was provided for about 100 cars. The company developed a joint-parking-fare ticket with a charge of 35 cents for parking and carfare both ways.

These instances are sufficiently typical to afford a general idea of the practices followed.

## A Modern Parking Garage in a Central Metropolitan District

***Baltimore's Means of Keeping the Streets Free for Traffic Use***

**Five acres of floor space, divided into departments for hourly, daily, weekly, and monthly use, and accommodating 1,000 automobiles, is provided in this four-story million-dollar ramp building. The structure is known as the St. Paul garage, being at St. Paul and Saratoga Streets. Wyatt and Nolting are the designers.**

**The first hourly parking level is solely for women drivers, and contains a lobby, lounge and dressing-room. Entrance and exit to the building are separate, and there are separate spiral ramps between floors for up-going and down-coming cars. Each spiral is of a constant radius from top to bottom of the building.**

# A Crime Incubation Center Is Uncovered by Survey

## *And the Ensuing Publicity Leads to Official Action*

SUDDENLY, in the midst of an elaborate survey of the recreational resources of Indianapolis* which had extended over many months, the investigators made a curious discovery. Official records disclosed the fact that the city had 280 billiard rooms, 53.7 per cent of which had only one or two tables.

Subsequent investigations showed that the situation had no parallel in cities of comparable size; and that the patronage per billiard room in Indianapolis *was far less* than in any other city. Each of these places catered to an average of only 1,469 per month, while Jersey City, at the other end of the list, had an average patronage of 6,844. In Detroit and Chicago the patronage per billiard room was from two to three times greater than in Indianapolis.

### Inadequate Legal Control

Interviews with local police and court officials confirmed the growing suspicion of those engaged in making the survey that there was more than a casual relation between this situation and the city's general crime problem. In one of these interviews Claude M. Worley, Chief of Police, stated in part:

"It is inconceivable that a billiard or pool room with but one table can provide a living for even one man, not to say anything about his family. The same question could be raised almost as pointedly regarding the 'two-table' places. The fact is that many of these places depend upon other sources of income related to various nefarious practices which either are permitted to be carried on right on their premises or which have these premises as their bases.

"I believe that there are many types of conspiracies against the public welfare hatched in them; indeed, I should be willing to declare that in many instances they are cesspools of evil and that it would not take many more than the fingers of one's hands to represent the number of really legitimate billiard and pool rooms in Indianapolis. The Police Department is doing all it can, with the number of men it has at its disposal, in keeping an eye on these places, and whenever in any particular district of the city we find they are getting quite out of bounds, we conduct raids to clean up the situation. The trouble, however, is that some of the raided places spring up in other sections of the city. . . ."

Judge James A. Collins, of the Criminal Court, declared:

"I cannot recall disposing of a single felony involving a group of young men, that it didn't develop in the hearing that the plans for the commission of crime were worked out in a pool room."

Investigation showed that the Indianapolis ordinance simply called for a license to operate a billiard or pool room, and enforced closing between midnight and five a.m., with a penalty not to exceed $50 for violation of both provisions. The Indiana State Law prohibits gambling devices of all sorts in billiard rooms, bars minors, and prescribes penalties of from $5 to $500, together with possible imprisonment, for various violations. Neither the ordinance nor the statute called for investigation of applicants for licenses before they were granted nor for periodic inspection during the year—a laxity not paralleled in the practices of at least some of the cities investigated.

### A Sounder Ordinance

Publicity for this state of affairs, sent out through the Survey Advisory Committee, has resulted, among other effects, in bringing from the Indiana Billiard Association an offer of cooperation in cleaning up a confessedly bad situation. This offer was accompanied by a frank statement that past efforts in this direction had failed of productive results. Eugene T. Lies, Director of the Survey, and others, after examination of legislation in effect in other cities, drew up an ordinance based largely on that of Cleveland, Ohio. This was approved by a special subcommittee of the general Survey Committee, and by the Indiana Billiard Association, and adopted by the city.

### Results

The ordinance calls for careful investigation of applicants for licenses, and for periodic inspections. During the first three months after it went into effect, 70 pool rooms were closed under its provision, and the end is not yet. The State Billiard Association has revived interest in a once-defeated state law which includes provision for a State Billiard Commission.

This experience, unique though it was shown to be among cities, is broadly significant: (1) as illustrating the manner in which the source of one of a city's most urgent welfare problems may be uncovered in the process of appraising the city's free-time amusement provisions; (2) as showing how the findings of a city recreation survey may be acted upon immediately with inestimable results. Once the broad daylight of publicity had been turned upon the city's crime breeding-spot, and a necessary corrective action indicated, the rest happened almost automatically.

Conditions in the field of commercial recreation in Indianapolis, otherwise, were not exceptional. Bowling, skating, swimming, public dancing and diversions offered at the two amusement parks were found fairly well regulated, with some cause for criticism of dance halls outside the city limits, and of amusement park offerings in the form of pornographic peep shows. The broad vein of vulgarity and sex appeal encountered in burlesque and motion-picture programs was considered fairly typical. Emphasis is placed, however, upon the fact that every city should have—what Indianapolis was found not to have—legal control over attendance of children at movies.

* A report of this survey, as published in book form, was reviewed in THE AMERICAN CITY, November, 1930, page 189.

# "LET US BE OF GOOD CHEER"

***THE CITY GREETS ITS CITIZENS***

***Annually the Esplanade in Cincinnati, Ohio, is transformed during the Christmas season into the the scene of beauty shown above***

***CHRISTMAS ON LINCOLN HIGHWAY, ARDMORE, PA.***

***Here, several weeks in advance of the holiday, each merchant places a diminutive Christmas tree in front of his store. The sizes and decorations are kept uniform. About 300 trees are used. This is a Chamber of Commerce enterprise***

## *The Playground Department of San Francisco Celebrates*

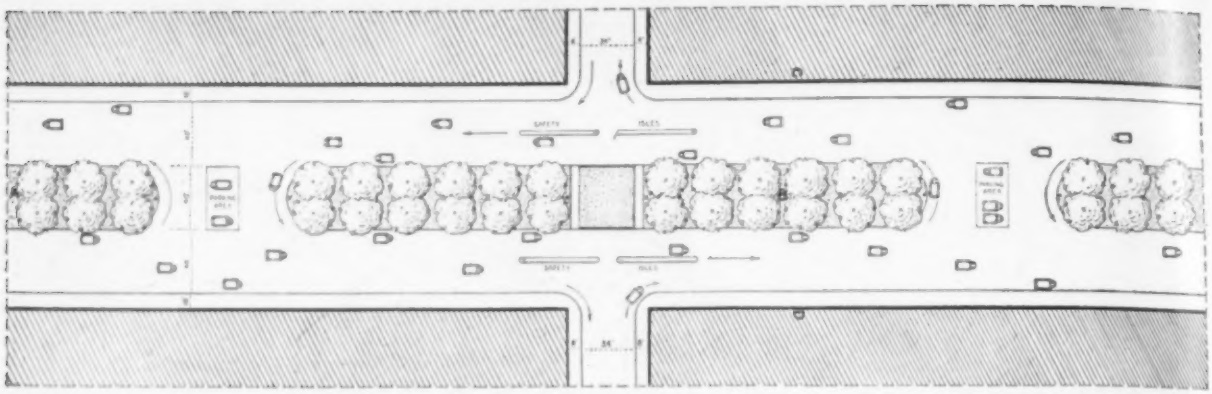
***Above is a glimpse of the big Santa Claus pageant parade which was a part of last year's annual festivities, and in which the whole city was interested. Children from all sections and of many nationalities took part***

***The Chinese playground, like the city's other recreation areas, is appropriately decorated for the occasion. Chinese lanterns, made by the youngsters, give a quaint touch to the Christmas tree, and are in harmony with the Chinese motifs of the shelter-house architecture***

*Lute Pease in The Newark Evening News*

***THE POOR LITTLE RICH BOY AND THE BREAD LINES***

***Self-pity, and vain regrets over the temporarily vanished prosperity of a wealthy nation, are rapidly turning into organized efforts for emergency winter relief and for stimulating employment during 1931 by the speeding-up of public works. Is your city helping to banish bread lines during 1931 by the kind of Christmas cheer indicated on the front cover of this issue?***

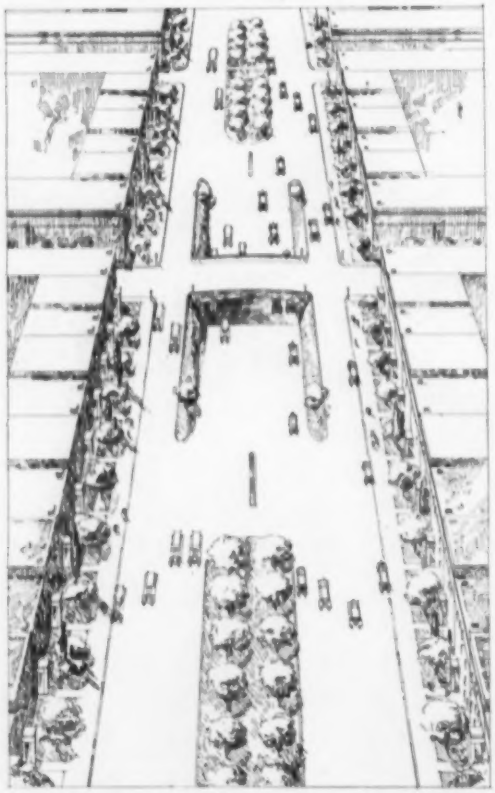


# Speed and Safety for Boston's Traffic

CROSS SECTION, C-D

Based on a recognition of the need for a modernization of the present highway system, the city of Boston has had prepared a Thoroughfare Plan, one of the chief features of which is the provision of continuous-flow traffic facilities. Seven of the ten major projects of the Plan, as it has been published by the City Planning Board, with Robert Whitten, of New York, as consultant, and as authorized under Chapter 168 of the Acts of 1930, are express roads. Typical sections of a model express road development, as incorporated into the Plan, are reproduced on this page.

Above is a section 140 feet in width with two 40-foot, one-direction roadways and a 40-foot central reserve strip. The traffic

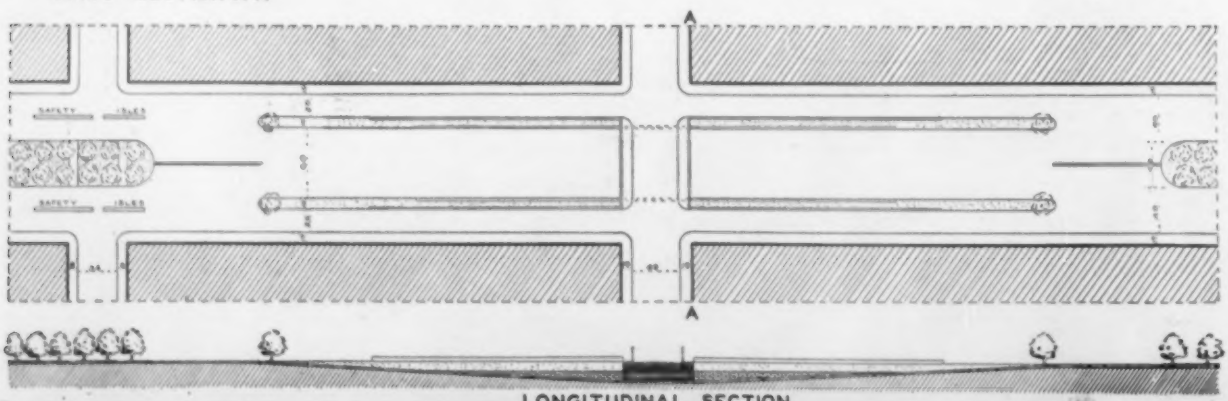


of a minor cross-street turns right with express road traffic, and then left around the end of the central reserve strip. Beneath it at the right is a cross-section view.

In the middle is an express road underpass.

The typical plan of an express road with grade separation (below) has a 60-foot central roadway and two 20-foot side roadways. There is a 10-foot strip for retaining wall and earth slope between the central roadway and the side ways. The approaching grades on the underpass are 5 per cent. The cross-street is carried on a bridge over the central roadway. A cross-section of this underpass is shown just above the lower drawing, at the left.

CROSS SECTION A-A



LONGITUDINAL SECTION

# Voters Approve Large State and Local Public Improvement Programs

MANY bond issues, large and small, were at stake in the November election, and an imposing aggregate was approved, which should have an important part in stimulating employment and business activity.

The largest single issue involved was that of $83,000,000 for state highways, in New Jersey, along with which were approved two other proposals, $10,000,000 for public institutions and $7,000,000 for water-works improvements, making a total of $100,000,000 for that state.

Another large highway issue approved was for $75,000,000, in Louisiana, including $7,000,000 as part of the cost of a bridge across the Mississippi River at New Orleans, and $8,000,000 for major bridges elsewhere in the state. An issue of $5,000,000 was also approved, to construct and equip a new state capitol at Baton Rouge; the Orleans Levee Board was authorized to issue $1,000,000 bonds for an airport on Lake Pontchartrain; and the city of New Orleans was authorized to issue $1,000,000 for public markets.

New York State gave its approval to $50,000,000 for state institutions. Other state issues that passed include $20,000,000 in California to finance war veterans in the purchase of farms and homes; $14,000,000 in Illinois for a state game, fish and forest preserve; $3,000,000 in Montana for building state institutions; and $2,800,000 in Wyoming for highways.

One large project not identified with state, county or city, was the $35,000,000 Golden Gate bridge approved by voters in the Golden Gate Bridge and Highway District in California, comprising territory in the San Francisco Bay region. War Department permission is yet to be secured for the bridge, which would span the entrance to the bay.

### Large City Issues

The largest amount involved in any one city was in Cleveland, Ohio, where a total of $31,500,000 was approved, made up as follows: sewage disposal plant, $14,000,000; sanitary and storm sewers, $5,000,000; sewers and streets, $5,000,000; straightening Cuyahoga River, $3,250,000; street opening and widening, $2,500,000; hospitals and sanitariums, $1,250,000; public parks and Mall, $500,000. The voters of Cuyahoga County (including Cleveland) endorsed an issue of $6,000,000 for the Main Avenue bridge, and one of $1,850,000 for a children's detention home and Juvenile Court building.

The city of Chicago gave popular endorsement to issues of $20,170,000 for streets and bridges and $500,000 for playgrounds; the Lincoln Park District approved $3,000,000 for extending the park; and Cook County voted $2,500,000 for forest reserve improvements and $2,350,000 for a hospital nurses' home.

In Baltimore, Md., $14,500,000 was approved, as follows: harbor improvements, $10,000,000; airport construction, $2,500,000; streets, bridges and grade-crossing eliminations, $2,000,000.

Other local issues authorized, other than school bonds, included:

| | |
|---|---|
| San Francisco, Calif., harbor improvements | $10,000,000 |
| County jail | 850,000 |
| Fresno, Calif., water improvements | 2,520,000 |
| Fresno County, Calif., buildings | 750,000 |
| Providence County, R. I., court-house completion | 2,300,000 |
| Nassau County, N. Y. (Mineola), hospital | 1,750,000 |
| Madison County, Iowa (Winterset), roads | 1,400,000 |
| Osceola County, Iowa (Sibley), paving | 800,000 |
| Seattle, Wash., bridge approach | 675,000 |
| Hamtramck, Mich., sewers | 500,000 |
| Welfare work | 250,000 |
| Winnebago County, Iowa (Forest City), paving | 707,000 |
| Wichita, Kans., sewage disposal plant | 700,000 |
| Flint, Mich., sewage disposal plant | 643,000 |
| Omaha, Nebr., airport | 500,000 |
| Tulsa, Okla., fair grounds | 500,000 |
| Pottstown, Pa., sewage disposal plant and trunk sewer | 500,000 |
| Berks County, Pa. (Reading), hospital | 400,000 |
| Ann Arbor, Mich., sanitary sewers | 350,000 |
| Lansing, Mich., paving | 350,000 |
| Findlay, Ohio, sewage disposal plant | 350,000 |
| Houghton County, Mich., sanitarium | 300,000 |
| Lexington, Ky., auditorium | 300,000 |
| Port Huron, Mich., bridge | 300,000 |
| Union County, N. J. (Elizabeth), parks | 300,000 |
| Winchester, Ky., sewers | 180,000 |
| Multnomah County, Ore. (Portland), bridge | 155,000 |
| Cumberland Township, Pa., highways | 150,000 |
| Hayward, Calif., water-mains | 150,000 |
| McKeesport, Pa., park lands | 140,000 |
| Milwaukee, Wis., police station | 140,000 |
| Medina, Ohio, sewage disposal plant | 135,000 |
| Midvale, Utah, water | 125,000 |
| Miller County, Ark. (Texarkana), jail | 125,000 |
| Honesdale, Pa., street improvements | 120,000 |
| Klamath Falls, Ore., fire station and equipment | 70,000 |
| Armory | 45,000 |
| Bucyrus, Ohio, hospital | 100,000 |
| Lewis and Clark County, Mont. (Helena), roads | 100,000 |
| Newport, Ky., grade-crossing elimination | 100,000 |
| St. Paul, Minn., water | 100,000 |
| Taylor County, Texas (Abilene), jail | 100,000 |
| Wahkiakum County, Wash. (Cathlamet), bridge | 100,000 |
| Chagrin Falls, Ohio, park purchase | 90,000 |
| Ridley Park, Pa., improvements | 84,000 |
| Midland, Pa., street improvements | 75,000 |
| Minot, N. Dak., water | 75,000 |
| Portage County, Ohio (Ravenna), hospital | 75,000 |
| East Cleveland, Ohio, sewer and paving | 67,000 |
| Neodesha, Kans., water filtration plant | 50,000 |
| Water softening plant | 15,000 |
| Etna, Pa., trunk line system | 60,000 |
| Grafton, Wis., sewers and sewage disposal | 37,000 |
| Water | 19,000 |
| Hubbard, Ohio, sewage disposal plant | 55,000 |
| Bellevue, Pa., parks | 50,000 |
| Clark County, Ark. (Arkadelphia), jail | 50,000 |
| Eastchester Town, N. Y. (Tuckahoe), fire station | 50,000 |
| Laurens County, S. C. (Laurens), hospital | 50,000 |
| Patton Township, Pa. (Turtle Creek), water-mains | 50,000 |
| Reserve Township, Pa. (Pittsburgh), water | 50,000 |
| Richland County, Mont., bridge | 50,000 |
| Port Townsend, Wash., water | 49,000 |
| Mt. Pleasant, Utah, hydroelectric unit | 40,000 |
| Boone, Iowa, swimming pool | 25,000 |
| Boone County, Iowa, addition to home for poor | 36,000 |
| Hatfield, Pa., electric plant | 38,000 |
| North Catasauqua, Pa., street improvements | 33,000 |
| Buena Vista, Va., water | 30,000 |
| Chester Township, Ohio (Chesterville), building addition | 30,000 |
| Ludlow, Ky., garbage incinerator | 30,000 |
| Pinedale, Wyo., jail | 30,000 |
| Woodville, Texas, water | 30,000 |
| Lynchburg, Ohio, water-works | 25,000 |
| Whitefish Bay, Wis. (Milwaukee P. O.), addition to village hall | 25,000 |
| Walton, Ky., water | 25,000 |
| Arlington Heights, Ohio, town hall | 20,000 |
| Rock Springs, Wyo., fire station | 20,000 |
| Hickory Grove Township, Wis. (Boscobel), highways | 18,000 |
| Macedonia, Ohio, fire station and apparatus | 18,000 |
| North Muskegon, Mich., water | 12,000 |
| Carbon County, Wyo. (Rawlins), county fair buildings | 10,000 |
| Ireton, Iowa, city hall | 10,000 |
| Oak Hill, Iowa, street improvements | 10,000 |
| Puyallup, Wash., fire station | 10,000 |
| Fort Jennings, Ohio, water mains, fire hydrants and pumps | 9,000 |
| Atwater township, Ohio, fire apparatus | 8,400 |
| Bradner, Ohio, sewage disposal system | 8,000 |
| Elmwood Place, Ohio (Cincinnati, P. O.), fire apparatus | 7,000 |
| Hudson, Ohio, fire equipment | 7,000 |

The grand total of the preceding state, city and other issues is $420,459,100.

### Other Important Election Results

Detroit, Mich., voted to raise the limit for the issuance of public improvement bonds; and permission was granted for the construction of an elevated motor highway over the tracks of the Grand Trunk Railroad, crossing various city streets. The highway is to be built by private capital and is to extend from Detroit to Pontiac.

A number of measures to facilitate local public ownership of public utilities were approved. Nebraska adopted an initiated law permitting municipal electric plants and extensions to them, to be financed by pledging future earnings through action of the city council, and also requiring a 60 per cent vote before selling a municipal plant. Washington voted in favor of the district power bill, sponsored by the State Grange, which authorizes the formation of public-utility districts to construct and operate water-works, irrigation systems and power-plants. A somewhat similar proposal in the form of a constitutional amendment was adopted in Oregon. In that state also the voters of the city of Salem instructed the City Council to take the necessary steps for the acquisition of water from Marion Lake for municipal power purposes.

City manager charters were adopted in Oakland and Ventura, Calif., Arkansas City, Kans., Covington, Lexington and Newport, Ky., and Bedford, Ohio, and the county manager plan was approved in Arlington County, Va., which is across the Potomac River from Washington, D. C., and has Arlington as its county-seat.

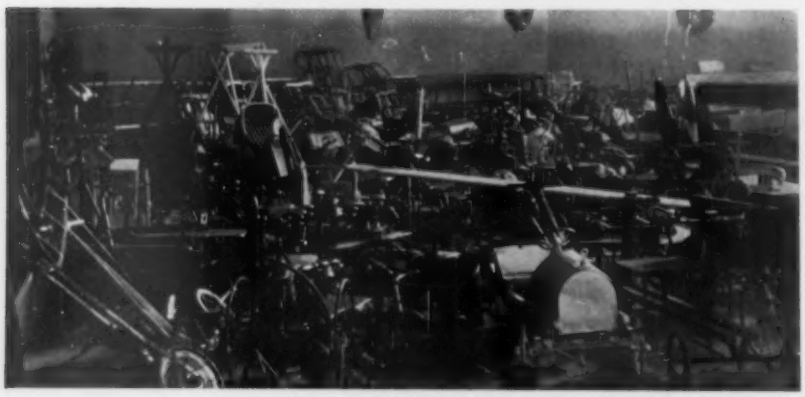
# FORWARD STEPS

**Reported by**
**Municipal Officials, Chamber of Commerce Executives, and Others**

## *A Christmas Tree White Way*

LITCHFIELD, ILL.—This city last year installed a white way of 91 lamp-posts covering five streets. The installation was made by the Illinois Light & Power Co. During the holidays the Litchfield Chamber of Commerce and citizens donated towards a Christmas tree illumination fund, and the result was that the city was a bower of beauty with sparkling colored lights during the entire holiday season. The six-foot Christmas trees were attached to the top of the white way posts by removing the center lamp. Each tree had twenty-five 32-candlepower colored lights. Three thousand of these were used in addition to the six regular lamps on the posts.

CHRISTMAS LIGHTING IN LITCHFIELD



A GLIMPSE OF THE DENVER FIREMEN'S TOY HOSPITAL

The effect was so beautiful and the plan so original that visitors from electric companies in other cities came here to see it. The installation was made by the light company employees.

JOHN J. MURRAY.

## *Denver's Firemen Reclaim Toys*

DENVER, COLO.—Time hangs heavily on the hands of city firemen. Twenty-four hours out of every forty-eight they must spend at their post, ready at an instant's notice to swarm to their stations on the snorting trucks and risk their lives in duty's call. What recreation is obtained between fires must be found in some activity that can be carried on in or about the fire station. With the aid of various paint dealers of Denver, three of the fire stations of this city have found a way to improve many of these idle hours, and at the same time gladden the hearts of thousands of poor children at Christmas who would otherwise have gone without the toy of their hearts.

For eight years now, on the first of November, the call has gone out from stations No. 1, 2 and 6 for cast-off toys and playthings. Two trucks, donated by a local newspaper, are kept busy gathering these, from woodshed and attic—a sled with a broken runner, a tricycle with two wheels missing, a doll without a head, and a kiddie car with all the paint scrubbed off. The heterogenous mass is piled in the back rooms of the fire stations. The city furnishes the room and lights, and permits the men to spend their spare time in mending and painting the different toys.

Paint is the main thing. Red and white, black and green paint, hundreds of gallons of it, went last Christmas to brighten these once dilapidated playthings, and, incidentally, the hearts and homes of the new owners. A toy airplane, which has apparently been in many a crash, is deftly hammered back in shape, and with a couple of coats of shining paint looks like new. Parts of playthings which are past redemption go to mend the others. Many of the dolls are passed on to telephone girls who act as the dressmaking department.

A few woodworking tools, such as a band saw, a scroll and circular saws, are required in the work, and these are loaned by woodworking establishments for the period in which they are needed. A hall is furnished by some one in the city in which to hold the Christmas tree and party. Last year it was the largest ballroom in the city, and the management furnished music and entertainment for the thousands of little guests who came from all directions. Each went away supremely happy, clasping his chosen toy, which in its shiny coat of paint meant as much to him as the expensive new one probably did to the former owner.

Each one who contributes to this Christmas party gives what he has the most of. That, to the fireman, means time; to the paint dealer, paint; to the newspaper, space for publicity; but each feels repaid a thousandfold in that joyous feeling of a worthy deed well done.

JOSEPH C. COYLE.

## *Los Angeles Tackles the Housing Problem*

LOS ANGELES, CALIF.—Bad housing was made the target by those interested in the recently held organization meeting of the Joint Legislative Committee on Better Housing in Los Angeles.

Initiated and led by the Housing Committee of the Municipal League, of which the writer is Chairman and Anthony Pratt Secretary, the dinner meeting at the City Club furnished the prelude to a concerted attack on a wide front. No better day could have been chosen by the organizers of the movement than the one following the announcement by President Hoover of the appointment of a planning committee for a White House Conference on Building and Home Ownership.*

A film picturing Sunnyside Gardens and Radburn, a credit to the City Housing Corporation of New York, indicated to those assembled that a new day has come. To climax the effect of New York's model undertaking, the pictures

* See THE AMERICAN CITY for November, 1930, page 141.

of Los Angeles' notorious house courts and slums, thrown on the screen, proved a challenge to the civic forces. Most serious is the problem here, as it affects not only the poor and many small wage-earners, but a resident population of our 100,000 Mexicans.

Many encouraging letters and telegrams from eastern friends and housing associations were a welcome proof that the Los Angeles movement was not fighting alone. Seventeen years ago the foundation was laid for the local city planning movement by the Municipal League's Joint Committee in cooperation with the American City Bureau. Today, representatives of social agencies, women's clubs, civic and labor organizations, architects and others are equally responsive to the call to arms to fight the community's worst enemy—the slums.

The campaign calls for sharpening the legislative weapons, much education, persuasion, and demonstration through the building of a housing center. The first step has been undertaken through the organization of the Joint Legislative Committee on Better Housing in Los Angeles, of which Rev. Dr. W. P. Gilliland, Superintendent of the Plaza Community Center of Los Angeles, is Chairman, and Dr. Bertha Folger is Secretary. Six standing committees are at work preparing revisions of the State Housing Act; the new County Housing Law and Building Code; city charter provisions on housing; the State Homestead Act relating to Special Assessments; aided by a Technical Advisory Committee and a Publicity Committee.

SIEGFRIED GOETZE,
Housing Consultant.

## *New Street Fountains Incorporate Novel Features*

SEATTLE, WASH.—The drinking fountains recently installed in Seattle are a distinct innovation, and present a marked contrast in both sanitation and appearance to the old outmoded bubblers, so reminiscent of much-the-worse-for-wear plumbing fixtures, and the antiquated porcelain linings that, despite a city's best housewifely efforts, frequently resembled a non-too-clean washbowl.

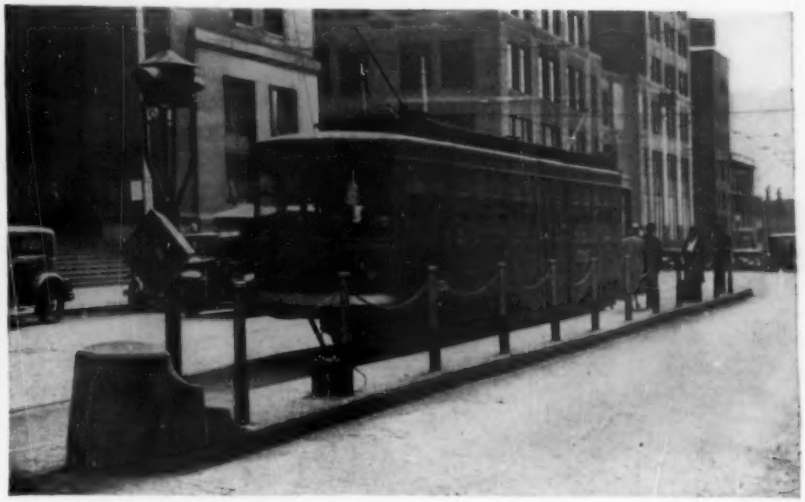
The new fountains, so constructed that if any one part be broken or injured in any way it may be easily replaced, are for the most part of cast iron, simulating bronze. Each consists of six sections, with a height over-all of some 34 inches.

The bowl, 15 inches in diameter, is supported by a broadly fluted capital. This rests upon a Doric column. A semi-circular portion of the supporting base, receiving the flow of water from an ornamental canine head above, serves all thirsty four-footed traffic. The opposite side of the base forms a step-up for children.

The unique feature of the fountain is the inner bowl of brass, that is lined with a 3/1,000 thickness of nickel and 1/1,000 chromium, so that the steady, gushing flow ejected under slow pressure control —so different from the thin, high stream that filled eyes and nose—appears to increase several-fold with beautiful effect from the reflection of the brilliant interior.

The fountain was designed and installed by J. W. A. Bollong, Seattle's Traffic Engineer.

S. B. WRENN.



ONE OF THE NEW PITTSBURGH LOADING ZONES

## *Pittsburgh Improves Its Street-Car Loading Zones*

PITTSBURGH, PA.—In an effort to protect street-car passengers while boarding and alighting, the city of Pittsburgh is installing a number of street-car loading zones designed by the Bureau of Traffic Planning. These consist of a concrete platform, 4 feet wide and raised 7 inches above the street surface. Pedestrians are prevented from leaving the platform by a chain railing supported on 3-inch pipes along the entire edge of the platform, except for one point of entrance. The forward end of the platform is guarded by a heavy concrete bumping block, 32 inches high and tapering by graceful curves to the level of the concrete platform at a point 3 feet from the forward edge of the bumping block. The bumping block is doweled to the street foundation with scrap rail. The concrete in the bumping block contains special whitening aggregates so as to increase its visibility.

Visibility of the zone is further increased through the use of a flashing electric beacon mounted on the first step of the bumping block. The beacon head, which is mounted at a height of 9 feet from the roadway, contains in addition to the flashing light visible from the approach side of the platform, a light on the reverse side illuminating the platform, and a base light designed to illuminate the bumping block.

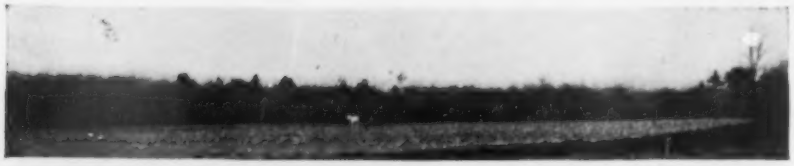
One of the principal objections to the raised type of loading zone has been the fact that many motorists have collided with the platform. In order to further minimize this danger, the Bureau of Traffic Planning has designed a special illuminated safety zone sign, the center of which is mounted at a height of 3 feet 6 inches from the street surface. This sign is diamond-shaped and is 18 inches square. The background is yellow with cut-out letters illuminated by red Neon light tubes.

In spite of the excellent illumination, a number of accidents resulted from collisions between motorists and the loading platform prior to the installation of the illuminated safety zone signs.

We plan to give the upper part of the concrete buttress a somewhat greater slope so as to permit more of the base light illumination falling upon the front face. We further plan to paint the bumping block with black-and-white squares, and are giving consideration to the possibility of including some such black-and-white checkerboard effect in its construction. We believe that by these means we have produced a safety zone which is as near fool-proof as possible and which at the same time gives the person waiting for street cars a much-needed protection.

There are, at the present time, 35 of these loading platforms installed in Pittsburgh, and plans are under way to increase the number to 50 during 1931.

LEWIS W. McINTYRE,
Traffic Engineer, City of Pittsburgh, Pa.



THE NEW WILMINGTON PARK
Above, the proposed athletic field site
Left, a glimpse of the pine woods

## *Poor Farm Transformed into Park*

WILMINGTON, MASS.—At our annual town meeting held last March it was voted that the land known as the Town Farm be turned over to the Park Commissioners as a town park.

This land, consisting of approximately 92 acres in the southeastern extremity of the town near the Woburn city line, has not been used as a town farm for ten or twelve years—since the time all the buildings were destroyed by fire. Our unfortunate poor are now taken care of by a fund set aside by the town annually for such persons. If without a home, they can be placed in the Almshouse of the State Hospital.

Many people have acclaimed this park as one of natural beauty. It has a large pine grove bordering the state highway which has been used considerably as a parking place for automobile parties, where the people bring basket lunches, etc., and enjoy a good, cool rest beneath the pines. Another section adjoining comprises an open field and a sloping hill covered with trees of various kinds—birch, cedar, oak, etc. In the rear of the park on the grove side of the state road can be seen the remains of the old aqueduct and the bed of the old Middlesex Canal. There is a shady road that extends around the entire park and is wide enough to accommodate automobiles comfortably.

On the opposite side of the state road the park land is low and flat, and has been used as farm land for several years. There is one tract about 800 feet in length and approximately 400 feet in width, which could be made into a fine athletic field.

A community day for cleaning was held August 16. Male citizens of the town turned out and under the supervision of the Park Commissioners did excellent work in putting the park in good and presentable condition.

The town of Wilmington celebrated its two-hundredth anniversary as a town the last week of September, and Sunday, September 28, was set aside for the dedication of this park to the veterans of all wars. It is now known as Memorial Park.

GARDNER I. RITCHIE,

## *Police Radio Tends to Discourage Crime*

ST. LOUIS, MO.—The radio transmitting station of the St. Louis Police Department went "on the air" on August 12, 1930, and has been in continuous operation on a 24-hour schedule since that time. The results obtained thus far have been highly gratifying and a large percentage of our arrests were made as a result of calls sent out in this manner. While it is true that a number of these arrests would have been made without the assistance of radio, there were a number of cases wherein the perpetrators of the offense would have certainly escaped if a slower means of communication had been used.

The utility of a police radio system is primarily the reduction in time required to transmit orders to police officers nearest the scene of a reported crime or disturbance. Formerly such requests for police assistance would be telephoned in either to the nearest police station, if the victim knew its location, or else to police headquarters. In the latter event the call had to be relayed to the proper district station with instructions to send a police car to the location of the disturbance. Valuable time would be lost during this repetition of the call and very often the place where police assistance was required was a considerable distance away from the station. In the case of hold-ups, the bandits invariably make their escape in an automobile, so that a delay of a minute or less frequently means the difference between apprehension and escape.

Through the cooperation of the newspapers and the local telephone company, the public has been instructed to merely ask the telephone operator for "Police" and they are connected to the radio dispatcher. The latter can then relay the information to the police car nearest the scene of the crime or disturbance. Additional information can also be transmitted to the car while on its way, in the event that such information reaches the dispatcher after the initial order has been transmitted. Meanwhile all other police cars have received the same information, which reduces the chance of a successful escape. This rapid dissemination of information greatly increases the effectiveness of the Police Department and keeps the officers assigned to radio-equipped cars on their toes, so to speak.

There are about eighty police cars equipped with receiving sets at the present time, most of which are on duty twenty-four hours a day. This number is to be increased to about one hundred in the near future. In addition to the cars, receiving sets are located in all the district police stations, so that the commanding officers are at all times instantly informed as to occurrences in their districts.

There seems to be good evidence that the knowledge of the speed and effectiveness of the police radio system is discouraging a number of the criminally minded, causing them to curtail their activities to an appreciable extent.

ROY S. GLASGOW,
Radio Engineer, St. Louis Metropolitan Police Department.

## *City and Railway Cooperate to Eliminate Grade Crossings*

BIRMINGHAM, ALA.—This city is in the midst of a $4,000,000 program to eliminate downtown grade crossings. One viaduct and an underpass have recently been completed, and two other underpasses are under process of construction. The cost of the work is being borne half by the city and half by the railroads.

Main-line railroads reaching Birmingham pass through the heart of the city, creating a traffic problem which has become more and more acute. The viaducts and underpasses are designed to remedy this situation. The construction program now under way was worked out after years of negotiations between the city and the railroads concerned.

Under the financing plan finally worked out, the city sold bonds for the entire cost of the work, but is to be paid back one-half of the cost by the railroads over a period of years. The city is to be responsible for all damage suits arising out of adjoining property owners. The Southern Railroad was given actual charge of the construction work.

GEORGE H. WATSON.

THE BIRMINGHAM RAILROAD OVERPASS

# Better Housing and Better Business

TWENTY to twenty-five million dollars' worth of new, large-scale, low-cost housing developments in New York will be under way in the near future, if a proposed method of cooperation between the Housing Association of the city of New York and the Emergency Employment Committee of that city is carried to a successful conclusion.

In a statement issued on November 24 by the Executive Committee of the Housing Association and endorsed by former Governor Alfred E. Smith as its President, the Committee says:

"We recognize that there is an emergent problem of material relief for the unemployed and their families which calls for the distribution of relief funds and for improvised and temporary jobs in the parks or elsewhere. We insist, however, that no less urgent and immediate is the more fundamental problem of starting in motion the normal economic forces which will bring this unemployment crisis to an end. It is an acknowledged fact that stimulation of the building industries is one of the first and most important factors in re-establishing the industrial cycle.

"In New York City, whatever may be the case elsewhere, there is no permanent need more clearly demonstrated than that for a great increase in the number of decent, attractive and sanitary dwellings both for tenants and for cooperative home owners of the lower-income groups. Such buildings can be made to pay limited dividends on the investment."

The statement suggests that the Emergency Employment Committee, after completing its campaign now under way for $6,000,000 for relief, unit with "ten to fifteen representatives of the leading banks and trust companies of the city, to do probably the most important work that can be done at the present time, namely, the building of model housing, which would mean tenement replacement on a large scale, and would at the same time afford $20,000,000 to $25,000,000 worth of work in this area. Of course, added to this, it would stimulate the brick business, the steel business and all kindred and allied trades.

"This plan," the Housing Association suggests, "would at once give jobs to a large group of workers in varied trades in which unemployment is now especially acute; would save time by the use of plans already tested; would stimulate trade by the purchase of building material; would meet an urgent and normal demand for low-priced but good housing; would involve no competition with existing employment; and would attract additional funds from people who cannot afford to give their savings as charity but would like to make a real contribution to the unemployment problem, and could afford to do so only by some such investment. Every contribution to a constructive solution of this problem must have this element of encouraging those who have savings to begin putting them to work."

### Intelligent Demolition or Unintelligent Conflagration?

"The Pittsburgh Housing Association believes that unsafe dwellings should be made safe or should be demolished, and that demolishing them will help to relieve unemployment," a statement by John Ihlder, Executive Director of the Pittsburgh Housing Association, announced recently.

"Unsafe and unfit dwellings are a community liability. . . . When vacant and open, as many now are, they become a menace to their neighborhoods. They are harbors for tramps and vagrants. They often contain filth and are misused as comfort stations, so menacing the public health. . . .

"Pittsburgh today can do intelligently what a conflagration would do unintelligently. Demolition of unsafe and unfit dwellings would relieve their owners of taxes, and would increase neighboring values. If these dwellings were cleared away, it would become evident that we have many sites conveniently located for new buildings. And clearing them away would give employment, raise property values, and make Pittsburgh a more attractive city."

### Reconditioning of Old Houses Urged in Philadelphia

The organization of a limited-dividend corporation to aid in the restoration of a blighted district in Philadelphia, by purchasing, rehabilitating and managing upwards of a thousand houses, much after the plan of Claude Leigh, in London, is suggested by the Philadelphia Housing Association. In the present condition of the real estate market, the Association estimates that with a generous amount set aside for reconditioning, old dwellings can be modernized and rented at $30 or less per month. The plan is proposed both as a means of stimulating employment and of providing improved housing conditions for the low-wage-earning group at an expected return of 6 per cent on the investment, allowing 2 per cent for depreciation.

The Association finds that old houses are at their lowest selling price for the past decade, and that the costs of labor and material also are more reasonable than they have been since 1921.

# The War Against Unemployment

*By* DR. HARRY EMERSON FOSDICK

FOR sheer agony and desperation of soul, lonely, bitter, and hopeless, this winter is likely to be a heavier season in this land than any winter of the Great War. Moreover, while the tragedies of war are dreadful, they are public and picturesque. The whole nation rises on a high tide of self-sacrifice to face them together, and the names of those who fall are inscribed on honor rolls in the public squares of every village in the land. But the tragedies of unemployment are drab as well as dreadful. Men do not go into this battle together, with the thrill of cooperation in a dangerous enterprise. Here they go alone, one at a time, unnoticed and forgotten. Unemployment has no uniforms, and no flags, no military crosses and congressional medals, no gold star mothers, no unknown soldiers buried at Arlington amid the plaudits of a nation.

A crisis like this shows how utterly inadequate a merely individualistic Christianity is. Some people say that Christianity is a matter of the individual soul and ought not to meddle with social questions. But in this crisis of unemployment let such a man test what he really does care about individual souls. Individual souls, for example, who have wanted work as a drowning man wants air, now, whipped and humiliated, stand day by day in the bread line. Individual souls of children who love their fathers as our children love us, who every night for months have waited with frightened hearts for the returning footsteps of a man who has been looking for work in vain. Individual souls of women who want for their children what you mothers want for yours and who cannot see now how they any longer can keep the family together.

What we who try to apply the Christian Gospel to the social situation are interested in is just individual souls, the personalities of men and women and boys and girls. But the more we are honestly interested in them the more we must care about the social situation that so terrifically impinges upon them, and if we do not care about the social situation, there is no doubt that a man's religion leaves him, like Peter, in the next room to the trial of Jesus, sitting by the fire and warming himself.

The need for relief is urgent and acute. The head of one of the social service departments of a New York hospital said the other day that never before in her life had she seen so many cases of straight starvation coming to the attention of the hospital. Here in New York, the richest city of the world, we face straight starvation this winter, and relief is imperative. Nevertheless, if I had the chance to say only one thing, I would not plead so much for relief as for the dedication of the brains of this congregation to such study of the causes of unemployment as will help to prevent its recurrence. You men of science and of business created this new age and it took brains to do it. You have the brains. And you are under the most serious obligation to use them now to discern the causes and devise the prevention of this appalling menace.

—From Dr. Fosdick's Sunday morning sermon, November 16, 1930.

# A City-wide Tree Plan and Street Tree Map in Coronado, Calif.

*By* W. W. CROSBY
Coronado City Planning Commission

THREE VIEWS OF RESIDENCE STREETS WHERE LANDSCAPE DESIGNS ARE REALIZED
While trees of uniform variety lined up in geometrical rows are better than no trees, the Coronado experience demonstrates the far greater charm of street planting harmonized with the character and topography of the particular district

LIKE "an egg without salt" is a city without street trees. And, further, that there must be some ordering, regulation, and control of tree planting will readily be admitted.

Coronado had no trees other than the chapparal that was native to the peninsula, when the city was first planned. The city's developers imported a considerable variety of trees for street planting, partly for the purpose of determining the species advantageous under the unusual local conditions. Now, forty years later, it is easily possible to tell what trees have proved their value and to recognize the objections that apply to any of them. Of course there are other species with which experiments can yet be made as the proper opportunity may offer.

The typical street here is 80 feet wide and there is a 25-foot setback for buildings on each side. The 80 feet is utilized thus: roadway, 48 feet; tree and grass (planting) strip, 7 feet from each curb; walks (cement-concrete) 5 feet each; second grass strips, 4 feet each.

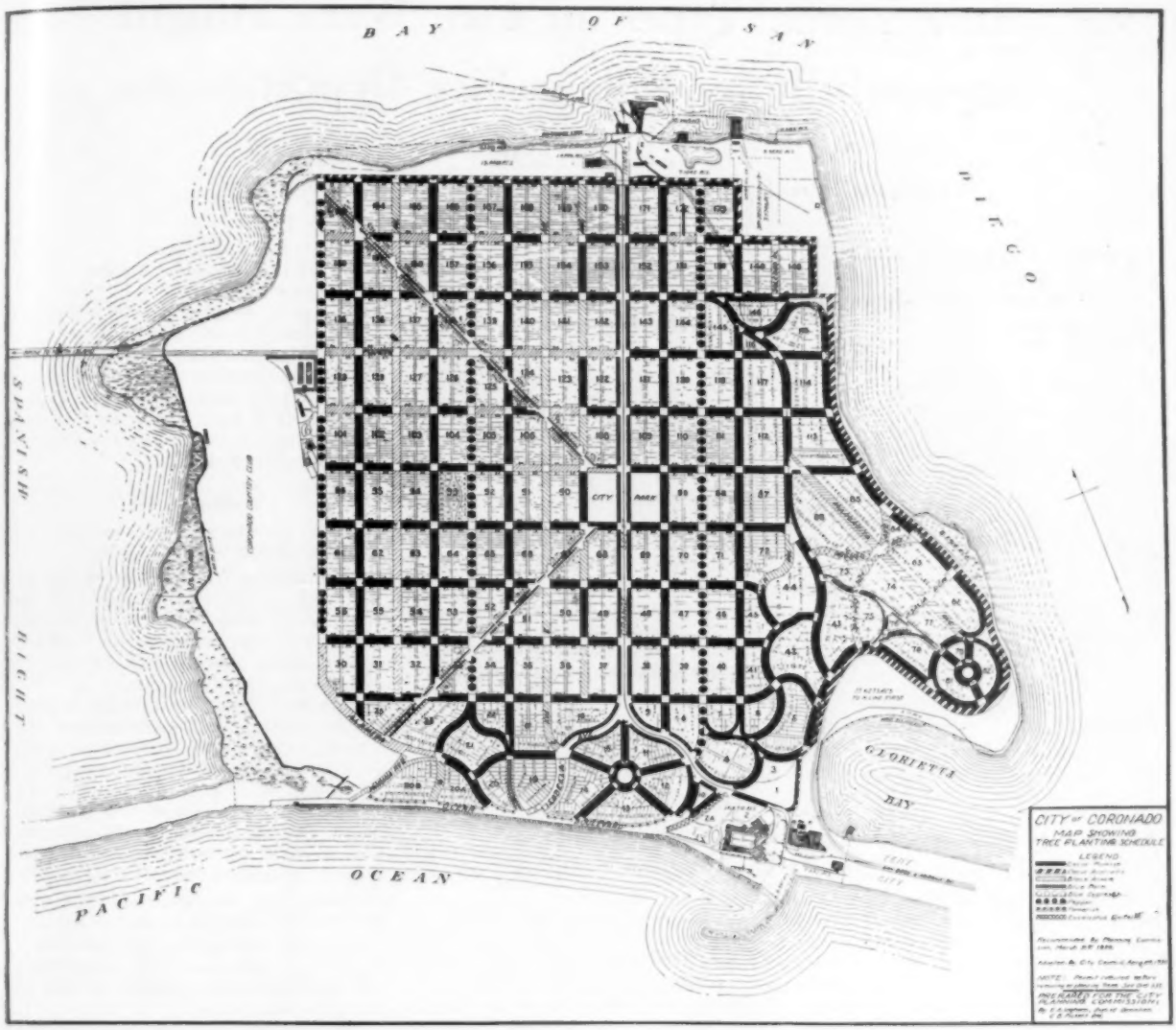
## Long and Fruitless Discussions Ended

During the past forty years probably no other subject has occupied so much time of the city authorities as that of *changing* the street trees. Almost every week some one petitions the City Council for the removal of a tree in front of the petitioner's (or a neighbor's) property, and hours of argument follow before the City Council or the City Planning Commission.

Owing to the lack heretofore of an established plan and a defined policy in the matter, such decisions have too frequently been made on other than logical grounds. The city authorities have for some years recognized that a well-considered scheme should be outlined and adhered to, not only to save fruitless discussion but also to produce desirable results.

Several surveys have been made and a

SUB-TROPICAL PALMS THRIVE ALIKE ON BUSINESS AND RESIDENCE STREETS
The *Cocus Plumosa*, the *Cocus Australius*, and the blue palm combine with the tamariak, the eucalyptus, the pepper tree and black acacia to give variety and interest to the tree plan




comprehensive report was prepared two years ago after much study by the Planning Commission. No conclusive action was taken until recently, when the present Planning Commission recommended the adoption of the accompanying street tree map, and the Coronado City Council formally adopted it, on April 8, 1930.

As a result, it is comparatively easy now for a property owner to secure the removal of an objectionable tree in front of his property, and its replacement by one of the variety called for by the map. Also, the trees that now accord with the map are protected from the temporary dislike of an individual, and the city authorities are spared the importunities of the individualistic person who always wants something different. The uniformity or regularity that is so necessary in street tree planting seems ultimately provided for by the map and by the regulations made by the City Council on recommendation from the Commission.

Last, but not least, the saving of time in interminable discussion, the avoidance of personalities and friction, the regulation of street tree matters to their proper place before the City Council, seem worth the efforts so far made and the further effort on the Council's part to maintain the present situation until the desired results shall be assured.

## For Better Shade Trees in Rhode Island Cities

Greater attention to the care and protection of municipal shade trees in Rhode Island is assured by a 1930 amendment to the State Tree Warden Act which makes the appointment of a tree warden compulsory in every city and town. Each warden must be appointed with the approval of the State Bureau of Forestry. The responsibility and authority of each is fully defined in the amended act. Since this act was put in force, tree wardens and the State Bureau have been cooperating in the development of shade tree educational and service activities, and efforts are under way looking to wide adoption of a model shade tree ordinance. "The Tree Wardens' Association of Rhode Island" has been organized and has 15 member municipalities, with the prospect of many more.

# How Three Types of Fire Were Fought Successfully by Village Fire Departments

*By* W. W. STEPHEN
Chief of Fire Department, Swann Chemical Co., Anniston, Ala.

THERE is an immense total of property values in North America in small towns and villages whose sole protection against fire is in the hands of departments commanded by officers who are serving on a part-paid or non paid basis.

Each of these small-town fire officers, if it were possible to appraise each individual intimately, would be found to belong to one of three classes, as follows:

(a) The type that never really grasps the essentials of fire engineering or fire fighting.

(b) Those that learn and become proficient through their own experience and from no other source.

(c) Those that learn from their own experience and also from knowledge that is afforded by the experience of other men.

With regard to the first type, it is the unfortunate and invariable case that their idea of fighting fire is to stand on the ground and direct streams toward the roof of a burning residence or into the doors and windows of a smoke-filled business structure. These officers regard their losses as acts of Providence or as due to the lack of more apparatus or water-supply. Frequently their main qualification for office is that of being a good fellow among the boys, and in most cases there is no hope for them.

With regard to the second type, there are many fine and efficient officers in service today whose training has been solely that which they could gather from their own experience. However, these are unusual men with an instinct for doing the right thing that most of us do not possess, and it is often the case in small towns that fires are so few and far between that the lessons gained from one may be forgotten before the next.

The third type are able, through information acquired from systematic study, to demonstrate repeatedly that the precepts written and spoken by men who are the masters of the science of fire fighting may be successfully applied to the operation of any fire department, however small.

The day when the only function of a fire brigade was to pour water on a fire is past.

There are many situations, even in village department operation, where the correct observance of certain essentials in fire engineering will spell the difference between success and loss.

The following examples, from the writer's experience, serve to illustrate this:

## Example I

*One-story frame bungalow, with asbestos roof.*

Fire originating in linen closet had entirely involved two rooms at rear of house, was rolling down hallway toward front of building and branching into other rooms and was roaring through the loft confined by the fire-resisting roof.

One line of hose was available with good working hydrant pressure, using a seven-eighth-inch tip on the controlling nozzle.

Officer in charge disregarded the spectacular outburst of flame and smoke at the rear of the building and carried the controlling nozzle of the charged line into the front door.

Cut-off was opened and pipe was advanced toward rear of hall, driving fire before it, in spite of severe punishment that pipemen were suffering from smoke. Fire in each side room was quickly killed by giving it a sweeping dash.

The main area of fire in the rear room was then reached and after several minutes of hard fighting was gotten under control. Ceiling in hall was then pulled and line operated into loft from short ladder.

The fire in this space was knocked out after a few minutes and the whole building was overhauled by a line of garden hose to minimize water damage.

The point of this example is that the officer in charge did not yield to the human impulse to turn the stream toward the place where the most flame and smoke was visible, but considered where he might check the fire at its apex of advance and quickly did so.

## Example II

*One-story brick, cotton warehouse, with a wooden frame and tin roof, covering half a block of area.*

Fire from unknown cause had involved nearly twenty bales of cotton and was spreading. Building was so heavily charged with smoke that entrance was impossible after door was forced.

One hose company and one truck company were available. While the former was laying a line from the only hydrant in the vicinity, the officer in charge sent the truckmen to the roof with orders to get it open.

One skylight was broken out and the sashes of several others pried off.

The resulting ventilation had immediate effect. The smoke in the building lifted at once, revealing the fire. The pipe on the charged hose line was rushed in and opened and the stream began to make a black mark on the fire. It was soon under control so that the damaged bales could be trucked out and overhauled by hand.

The point of this example is that the department did not adhere to that fallacy that is common among many small-town organizations, and a few larger ones—that to admit air to a burning building is a fatal move. In this case the practice of ventilation was properly and skilfully carried out.

## Example III

*Large two-story, frame, shingle-roof house, with rear one-story wing.*

Fire starting from sparks on kitchen roof had entirely involved roof and loft of one-story wing, had spread up rear wall of two-story main structure and was rapidly going through loft and roof of this.

Two hose lines from a single hydrant at the edge of town one thousand feet away furnished the only streams available and it was evident that some hard work must be done.

One line was taken to rear of house, to operate on one-story wing, on rear wall of main structure, and to keep fire from entering first story of this.

Second line was taken in front door and up hall stairway to second floor.

Fire was coming through the ceiling, hot plaster and woodwork were falling and the hall and rooms were heavily charged with smoke.

Stream was operated to drive fire back where it was coming into rear windows and then out of windows down on roof of one-story wing to assist the other stream in killing the fire that was rolling up from it.

Fire overhead on second floor was then cooled down a bit, ceiling was pulled, a short ladder put up and pipe operated from it into the loft.

After a terrific fight the fire up here was gotten under control, while the other stream had finished up the one-story wing.

This small department, by hard fighting, enduring severe punishment, coming to close quarters with the fire and the skilful use and cooperation of two weak streams, thus saved more than half the value of this big house.

Had they hesitated a moment and attempted to fight the fire from the outside it would have quickly involved the second floor and a total loss would have resulted.

The men had confidence in their officers and the pipemen upstairs trusted that the other line downstairs would keep the flames from entering the hall under them from the rear and cutting them off.

### Drill Schools Will Help

There is a right and a wrong way to do everything even in the smallest organization, and the holding of a department drill school will go very far to insure that things are done the right way.

A half-dozen drill evolutions, "boiled down" from the many employed by the New York Fire College, will prove very effective in not only training but maintaining the interest of the members of a volunteer department.

The use of these, in connection with the study of several magazines and books that are published on the subject of fire engineering, will develop department officers that are trained through the experience of other men, in addition to that of their own.

# Better Team Work in Texas

*By* GRACE K. PLANT

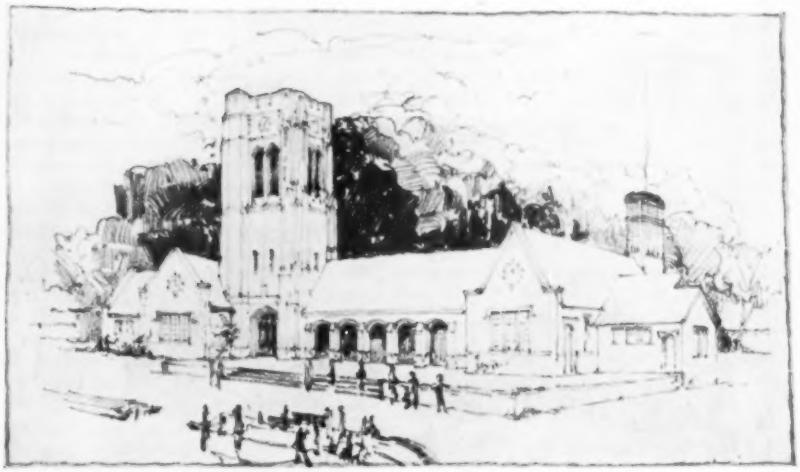
A CLOSER correlation of activities and a more effective cooperation between the various sections of the state in matters of state-wide interest are the benefits which Texas hopes to reap as the result of the newly formed All-Texas Council, composed of representatives of the three regional commercial organizations. The bodies represented are the East Texas, the West Texas and the South Texas Chamber of Commerce.

Meeting quarterly in Austin, the Council in reality acts on behalf of the several hundred local Chambers of Commerce that make up the regional organizations. Because of the geographical immensity of Texas and the diversity of its interests, a state chamber was not judged feasible. The present arrangement will facilitate projects designed to advance the common welfare and at the same time will minimize the danger of duplication and overlapping efforts. Also, this plan obviates the necessity of setting up the machinery of a super-organization with its consequent overhead expense.

Texas, which now ranks fifth in population among the states, recognizes a formidable rivalry in the rapid growth of California. The Council therefore has adopted as its slogan, "Make Texas Third by 1940."

The Chairman of the Council is Charles E. Coombes, of Stamford, President of the West Texas Chamber of Commerce. The Secretary is D. A. Bandeen of Stamford, General Manager of the West Texas Chamber of Commerce. The other members are Guy A. Blount, President, and Hubert M. Garrison, General Manager of the East Texas Chamber of Commerce; Grady Kinsolving, President, and Ray Leeman, General Manager, of the South Texas Chamber of Commerce; and Walter E. Long, Secretary-Treasurer of the Austin Chamber of Commerce.

# Where Use Was Added to Beauty in a Chicago Park Development

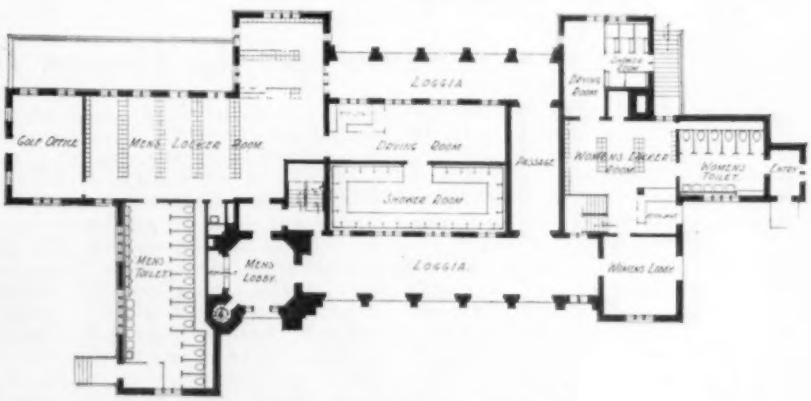


ARCHITECT'S DRAWING OF THE FIELD HOUSE

WHEN a carillon tower with a complete twenty-bell set of chimes was made possible for construction in Lincoln Park, Chicago, through bequest of Mrs. Anna M. Wolford, widow of Jacob A. Wolford, the Park Commissioners decided, for practical reasons, to incorporate the tower into a field house. The firm of Edwin H. Clark, Inc., architects of many of Chicago's most distinctive recreation buildings, and designers of the new Chicago Zoological Gardens, are responsible for the plans of the structure now being erected to meet this unusual combination of esthetic and utilitarian uses. It is to be located at the foot of Waveland Court in Lincoln Park, where it will serve as a club-house and locker-building for the baseball diamond, tennis court, and new golf course being built there.

The men's department consists of a locker-room containing 250 lockers, with 24 showers and a drying-room. The women's department contains 50 lockers and 4 showers. Each department has generous toilet facilities, which are accessible from the outside as well as from the locker-rooms, and which serve as park comfort stations. At the north end of the first floor is an office and shop for the golf professional. At both the east and west sides of the buildings are large covered porches, or loggias, where spectators may sit and watch the baseball or other games in progress.

The basement contains the heating and ventilating plant and large storage rooms for various park equipment, also club locker rooms for men and women. These are designed for the purpose of storing team equipment for various organizations using the fields. The exterior of the building is of Gothic architecture in red brick trimmed with Bedford stone and has a slate roof. The bell tower, its dominant feature, is 75 feet in height.




GROUND FLOOR OF THE FIELD HOUSE

*A two-year record of progress in the design and construction of Parks and Recreation Buildings appears in illustrated form in the* 1930 MUNICIPAL INDEX.

# Three Types of Highway Building Favored by the President's Emergency Committee for Employment

IT is felt by President Hoover's Emergency Committee for Employment and by economists generally, Colonel Arthur Woods, Chairman of the Committee, stated on November 24, "that carrying out a broad and comprehensive public-roads program at a time like this is one of the soundest procedures to meet a situation of depression because it not only employs labor and materials necessary in actual construction, but also utilizes a background of additional labor to provide the materials and the effective completion of such a program. It is estimated that for every man actually employed in working on a road, three other people become gainfully employed as a result, not only in the supplying of materials and equipment, but in other industries all along the line."

While various proposals and suggestions have been before the Committee—such as the building of new transcontinental highways—their opinion is that these are not now needed; at any rate, they are not needed as much as other roads. Several types of roads are essential from a broad economic standpoint, and such roads, it was stated, not only would tend to alleviate the present situation, but would definitely contribute to broad, valuable economic improvement.

The Committee is in favor of the furtherance of three types of roads:

*Main highways.*—At present main highways leading into large centers of population have to absorb an increasing amount of traffic as they near the large cities. This congestion is not only annoying but creates an economic loss of time and effort. It is recommended that these main highways leading into large cities be widened and improved in order that they may take care of the traffic that feeds into them as they approach large centers. It is recommended that where additional highways of this character are needed, such highways be built.

*By-pass roads.*—It is recommended that more roads be built leading around large centers of population. The motorist in going on through-trips from one large city to another so often loses time and effort in trying to pass through intermediate cities. He adds to the traffic congestion in those communities, not only encountering difficulties for himself, but making them for the residents of the town. By skirting around cities, this congestion and trouble can definitely be relieved. Migratory traffic from city to city that otherwise would have to pass through cities finds easier going.

*Other roads.*—Under present arrangements the roads built by a combination of state and Federal cooperation are main interstate and intercounty highways. The Committee is interested to see an extension of this system as rapidly as practicable in such a way that more roads serving more remote farming sections may be developed.

# Hotel Men Vote Against Rural Billboards

AT the meeting of the Massachusetts Hotel Association held at the Hotel Statler in Boston on October 23, 1930, a committee, of which J. Tennyson Seller, of Greenfield, Mass., was Chairman, reported unanimously in condemnation of the rural billboard, including the hotel boards. The following excerpts are taken from the report, which was unanimously approved by the Association:

"This committee, after careful consideration and several meetings, is prepared to recommend to our Executive Committee that the Association go on record, and so inform the Commissioner of Public Works, that we are in favor of and urge the abolishment of all advertising roadside signs, including directional hotel signs, except those located within town and city limits. It is the unanimous opinion of the committee that roadside signs are a distinct detriment to the beauty of our landscape and to roadside beautification. The saying that 'beyond the billboards lies America' is literally true, and if they are entirely abolished all companies using this medium of advertising would give up an equal advantage and would be equally as well off and would in no way suffer from a lack of publicity because of the many mediums available for this purpose, such as magazines, printed forms, the press, the radio, direct mail, the various touring publications, etc.

"The people of this county are almost unanimous in preserving the natural beauty and landscape as one of our most valuable, lasting and wealth-producing possessions. The landscape defacers have no rights when they are set against the rights of the general public."

The report also stressed the necessity of keeping the roadsides free from rubbish, urged greater attention to the appearance of town approaches, and commended The New England Council (an association of business interests), the Massachusetts Chamber of Commerce, the New England Federation of Women's Clubs, and other organizations, for their work for improved and beautified roadsides. It also called attention to the envelope stickers distributed by the Massachusetts Forestry Association reading, "I favor products not advertised on the landscape." The report urged the Hotel Association to lead, and not to follow, in the important movement.

ALBERT S. BARD.

# Atlanta and the Census Bureau

IN 1929, as reported by THE AMERICAN CITY on page 5 of its issue for October of that year, the Legislature of Georgia created a new municipality of Atlanta, composed of the city of Atlanta as it then existed, plus five surrounding cities and various unincorporated communities. The new Atlanta area was over five times the old, and the population was estimated as about 30 per cent greater. The six cities included were, for the purposes of the statute, to be called boroughs, but they retained their autonomy, although a mayor and council of the greater city were provided for, and a charter was to be prepared, for submission in ten years or later to the Legislature and the various boroughs.

Since the taking of the 1930 Federal census, the Director of the Census has released population figures for a large number of cities. In the case of Atlanta he did not accept the above-mentioned legislation unreservedly, but gave the population of the borough of Atlanta, 270,366, with a footnote mentioning the statute and giving the population of the greater city, 360,691, together with the figures for its components. Thereupon the city of Atlanta, together with certain Atlanta newspapers, hotels, etc., brought suit in the Supreme Court of the District of Columbia to compel the Director of the Census, by mandamus, to list the population of Atlanta as 360,691 instead of 270,366. In his answer the Director stated that he had examined the statute and found "that the so-called 'municipality' of Atlanta possessed none of the qualities or characteristics of any other city in the United States. The act gave to the officials no governing power, nor could said officials levy taxes, issue bonds or enact legislation or ordinances of any kind."

The Court rendered its decision on October 28, denying the mandamus, although stating that the Director had no authority to refuse to accept what the state had declared to be a municipality. The denial of Atlanta's petition was based on a strict construction of the law under which the census was taken. This was stated to contain no express provision for any census of *cities*, and hence the Director could not be ordered to use any specific figures for a given city, when he had no authority to issue any list of city populations at all. Whether this ruling will result in the omission of population figures for cities from census publications remains to be seen in the future.

# The American Child's Bill of Rights

***Conclusions Adopted by the White House Conference on Child Health and Protection, Held in Washington, November 19-22, 1930***

EVERY American child has the right to the following services in its development and protection. The Conference is mindful of the special emphasis needed upon these services in child health and protection in Porto Rico, the Philippines and our other insular possessions.

### The Child and the Mother

1. Every child is entitled to be understood, and all dealings with him should be based on the fullest understanding of the child.

2. Every prospective mother should have suitable information, medical supervision during the prenatal period, competent care at confinement. Every mother should have post-natal medical supervision for herself and child.

3. Every child should receive periodical health examinations before and during the school period, including adolescence, by the family physician or the school or other public physician, and such examination by specialists and such hospital care as its special needs may require.

4. Every child should have regular dental examination and care.

### Measures for Protection

5. Every child should have instruction in the schools in health and in safety from accidents, and every teacher should be trained in health programs.

6. Every child should be protected from communicable diseases to which it might be exposed at home, in school or at play, and protected from impure milk and food.

7. Every child should have proper sleeping rooms, diet, hours of sleep and play, and parents should receive expert information as to the needs of children of various ages as to these questions.

8. Every child should attend a school which has proper seating, lighting, ventilation and sanitation. For younger children, kindergartens and nursery schools should be provided to supplement home care.

9. The school should be so organized as to discover and develop the special abilities of each child, and should assist in vocational guidance; for children, like men, succeed by the use of their strongest qualities and special interests.

10. Every child should have some form of religious, moral and character training.

11. Every child has a right to a place to play, with adequate facilities therefor.

12. With the expanding domain of the community's responsibilities for children, there should be proper provision for, and supervision of, recreation and entertainment.

### Provision for the Handicapped

13. Every child should be protected against labor that stunts growth, either physical or mental, that limits education, that deprives children of the rights of comradeship, of joy and play.

14. Every child who is blind, deaf, crippled or otherwise physically handicapped should be given expert study and corrective treatment where there is the possibility of relief, and appropriate development or training. Children with subnormal or abnormal mental conditions should receive adequate study, protection, training and care.

Where the child does not have these services, due to inadequate income of the family, then such services must be provided to him by the community. Obviously, the primary necessity in protection and development of children where poverty is an element in the problem is an adequate standard of living and security for the family within such groups.

15. Every waif and orphan in need must be supported.

16. Every child is entitled to the feeling that he has a home. The extension of the services in the community should supplement and not supplant parents.

17. Children who habitually fail to meet normal standards of human behavior should be provided special care under the guidance of the school, the community health or welfare center or other agency for continued supervision, or, if necessary, control.

18. The rural child should have as satisfactory schooling, health, protection and welfare facilities as the city child.

### Coordinated Organization

19. In order that these minimum protections of the health and welfare of children may be everywhere available, there should be a district, county or community organization for health education and welfare, with full-time officials, coordinating with a state-wide program which will be responsible to a nation-wide service of general information, statistics and scientific research. This should include:

a. Trained full-time public health officials with public health nurses, sanitary inspection and laboratory workers.

b. Available hospital beds.

c. Full-time public welfare services for the relief and aid of children in special need from poverty or misfortune, for the protection of children from abuse, neglect, exploitation or moral hazard.

d. The development of voluntary organization of children for purposes of instruction, health and recreation through private effort and benefaction. When possible, existing agencies should be coordinated.

It is the purpose of this Conference to establish the standards by which the efficiency of such services may be tested in the community and to develop the creation of such services. These standards are defined in many particulars in the reports of the committees of the Conference.

The Conference recommends that the continuing committee to be appointed by the President from the Conference shall study points upon which agreement has not been reached, shall develop further standards, shall encourage the establishment of services for children, and report to the members of the Conference through the President.

This summary, which Dr. H. E. Barnard, Director of the Conference, said "we tried to make a classic," was prepared by the committee on procedure on the basis of the work of the Conference committees.

EDITORIAL NOTE.—The complete stenographic record of the official Proceedings of the White House Conference on Child Health and Protection are published in a 56-page supplement to *The United States Daily* for November 28, 1930. Copies may be obtained from Educational Department, *The United States Daily*, Washington, D. C.

# Consider the Children of the Unemployed

"CHILDREN'S agencies should be the first to support programs for the organization of the unemployment market, a program of public works and other measures which promise to prevent or mitigate the effect of our industrial depressions." This fact was emphasized in a stirring address by Miss Grace Abbott, Chief of the Federal Children's Bureau, at the White House Conference on Child Health and Protection, on November 20.

"As a result of our lack of foresight," Miss Abbott continued, "we are now in the midst of confusion. We must resort to temporary expedients, and the children of the unemployed will pay for it. They will be undersized because they have been undernourished. Large numbers will fall the victims of tuberculosis when, as young wage-earners, they are subjected to the test of regular employment; and the year of bleak uncertainty will leave its mark on their personality. None of us can be happy about what is now being done. We deserve to be unhappy about what we have not done.

"Now, as in previous periods of industrial depression, a permanent burden has fallen upon the backs of little children. The losses are permanent because the gains that they should make this year cannot be postponed."

# Greetings

*from*

## American Steel & Wire Company

Again the Yuletide, with its inspirations of good cheer is with us—the New Year approaches—and we sincerely extend to you our very best wishes for a very

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HAPPY, PROSPEROUS
NINETEEN THIRTY-ONE

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# Power Systems for Small Communities

AN interesting study of relative costs of producing electric power by diesel engines for a large number of small communities, by isolated plants and by regional plants, was presented in a paper on "Economics of the Use of Diesel Engines for Electric Power Generation," prepared by T. A. Burdick, Chief Engineer of the General Water Works & Electric Corporation, Fort Worth, Texas, for the Third National Oil and Gas Power Meeting of the American Society of Mechanical Engineers, at State College, Pa. Careful estimates of construction and operating costs and fixed charges were made for three systems of different degrees of concentration of power generation. The final cost per kilowatt-hour delivered to the consumer decreased with the increased concentration, but the results were not far apart. The author says:

"In order to give a concrete illustration of the probable investment and operating costs of a complete system for the production and distribution of electric energy with energy produced in diesel plants, a certain problem has been selected and three solutions of the problem are presented herewith for comparison. The problem consists of producing and distributing energy to 15,700 customers in 60 different towns, with the number of connections in the towns varying from 100 to 1,000 and the towns located within an area of about 125 to 140 miles.

"In solution 'A' the towns to be served have been divided up into 21 different groups or individuals and are served with energy from 21 different plants. This may be called the individual plant system, wherein a plant is installed in every sizable town and no attempt is made to transmit energy except in small quantities to adjacent towns.

"In solution 'B' the towns to be served have been divided into six separate groups, each one of which is served from a plant similarly located in the largest town within the group. This arrangement may be called the local-group-plant system. In this system considerable use is made of transmission lines of intermediate voltage serving towns a considerable distance away from the generating plants.

"In solution 'C' a single plant has been installed and all towns have been interconnected by means of a transmission network system. All transmission lines and transmission substations have been designed with ample capacity to serve the loads indicated with voltage regulations at point of delivery within satisfactory limits. Present-day requirements in electric service are exacting to such a degree that a high standard of service is required in regard to both regulation and continuity. The systems as laid out will be found to follow good engineering practice in fulfilling these requirements.

"It is of interest to note that in solution 'A' the total amount of energy lost in transmission and distribution is 13.1 per cent of that delivered from the plant. In solution 'B' the percentage is 15.1 per cent, and in solution 'C' 17.6 per cent. This appears to work out in about the correct proportion found in actual operation."

The cost per kilowatt-hour produced in the various solutions were: for "A," 0.95c; for "B," 0.63c; and for "C," 0.44c. After taking account of transmission and distribution costs, and fixed charges of 13½ per cent, the costs on the basis of kwh. delivered to the customer were, for "A," 4.52c; for "B," 4.11c; and for "C," 4.01c. It is stated that if a steam plant instead of a diesel plant were used in "C," the first costs and therefore the fixed charges would be less, but that this would be more than offset by higher fuel and labor costs.

In conclusion Mr. Burdick says:

"There is a definitely established field for diesel plants where the capacity of the plant is small, where water and cooling conditions are unfavorable for condensing turbine operation, where the site is relatively inaccessible, or where space available is extremely limited. It is of more interest, however, to compare the diesel plant with other types of plants for situations where none of the above conditions exists, strictly on a basis of operating and investment cost. On such a basis and in cases where there is no cheaper fuel available than oil, it would appear that the diesel plant is on par with any other type of plant, provided the engines used are of correct and satisfactory design and can be relied on for uninterrupted service when a proper maintenance schedule is followed. The success or failure of this type of prime mover, then, in the final analysis, depends on the manufacturers of the engines. Adequate engineering, suitable design, proper selection of materials, good workmanship, and a willingness to stand behind their product in operation as well as in sales promotion, should establish a high and important position for the diesel engine in the power field."

# Ontario Passes a Safety Responsibility Law

SINCE September 1 a Safety Responsibility Law, which is intended to encourage safe and careful driving and to penalize reckless or careless drivers, has been in force in the province of Ontario, Canada. A number of states of the United States have similar laws, and the Ontario measure was not recommended until inquiry had been made in the United States as well as in Canada and England.

The act, endorsed by automobile and trade associations, applies to all automobiles, motor trucks, trailers, motorcycles and tractors, and will apply penalties only to those who bring themselves under it, according to a brief analysis of the law prepared by the Canadian Automobile Underwriters' Association. "Under the law the operator's license and his motor-vehicle permit will be suspended until the holder was given proof of his financial responsibility" if any of a number of specified offenses is committed in Ontario or in any other province or in any state of the United States; "or if he has not paid any final judgment against him for damages caused to any person to the limit of $5,000 for one person and $10,000 if two or more persons have been injured, or to the property of another in excess of $100 and up to $1.000 arising out of a motor-vehicle accident, whether such judgment be rendered against him in Ontario or in any other province of Canada."

The offenses mentioned in the act include reckless driving if any injury to any person or property occurs in connection therewith; racing on a highway; exceeding the speed limit if any injury to any person or property occurs in connection therewith; failing to remain at or return to the scene of an accident; driving without a license; any criminal offense involving the use of a motor vehicle which includes any conviction for driving a motor car while intoxicated. A license or permit which has been suspended will not be restored until damages awarded by a court in Ontario or in any other province have been paid. Proof of financial responsibility will also be required for the future, and must be continued for three years.

Proof of financial responsibility may be given by any one of the following methods: filing of a policy of an authorized insurance company with limits of $5,000/10,000 for public liability and $1,000 for property damage; filing of bond of an authorizing guarantee or surety company; filing of a bond by two sureties approved by the country judge; deposting $11,000 in securities.

Accident reporting to the police by the persons involved, and by the police to the registrar of motor vehicles in Ontario, is required in the case of every motor accident in Ontario which results in injury to any person, or damage to property which apparently exceeds $50. The registrar is to keep a permanent record for each person involved in an accident and will furnish a copy of such a driving record on request and the payment of a fee of $1.00. Reciprocal arrangements between Ontario and other provinces and states provides that any driving offense by an Ontario motorist committed outside of Ontario will be reported to the registrar of motor vehicles in Ontario, who may then require proof of financial responsibility; and any offense in Ontario by drivers of cars of other provinces and states will be reported by Ontario to the official who issued the license.

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# AIRPORTS AND AVIATION

**A Monthly Department on Aeronautical Activities of Municipal Interest**
**Conducted by ARCHIBALD BLACK, President, Black & Bigelow, Inc., Air Transport Engineers**

## *New Jersey Modifies Seaplane Restrictions*

THE New Jersey State Board of Commerce and Navigation, responding to objections raised by the aircraft industry, has signified its willingness to modify its regulations prohibiting airplanes from landing on or taking-off from inland lakes in that state. These regulations, to which reference was made in the November issue, were promulgated by the Board with the explanation that the use of lakes by seaplanes had created a menace to small pleasure craft. In response to the objections raised by the aircraft industry, the Board arranged a hearing at which the Aeronautical Chamber of Commerce was represented by H. Stewart McDonald, its general counsel, while John J. Redfield appeared on behalf of the Curtiss-Wright Corporation. The Chamber's representative stated that his organization had no desire or intention to question the Board's ruling so far as Lake Hopatcong was concerned, but that his organization felt that the general ruling was too sweeping and too extensive and as such would work injustice on the industry. He recommended that the ruling be modified to cover the Lake Hopatcong situation only, leaving the decision regarding other use of inland waters in abeyance until need arose for further action. After considering the argument, the Board finally adopted a resolution modifying its previous action by limiting the prohibition to Lake Hopatcong. The resolution further stated that permits for aircraft to use other waters will be considered upon their own merits at the time application for such permit is made.

## *Zeppelins to Use Helium*

THE unfortunate R-101 disaster referred to in a previous issue has already had some far-reaching effects. Perhaps the most important of these is the startling announcement by Dr. Hugo Eckener of his decision to depart from the use of hydrogen. Inasmuch as all the Zeppelin airships built to date for use in Germany have been designed for use of hydrogen, Dr. Eckener's decision is a very marked departure from the precedent established by the originators of this type of airship. In an announcement made at Berlin early in November, Dr. Eckener stated that two years of work were practically undone by his decision, and the launching of the latest Zeppelin will have to be postponed for at least a year. Inasmuch as he had received word from the United States that quantities of helium would be obtainable for use in its new Zeppelins, he stated that it would be "an act of rashness' to continue building the latest ship which had been designed to use hydrogen. It is understood that changes in the construction are being made so that the capacity of this ship, the LZ-128, will be increased from 145,000 cubic meters to about 160,000 cubic meters to allow for the difference in lifting effect of the helium as compared with the hydrogen for which it was originally planned. In his statement, Dr. Eckener also mentioned that crude-oil engines will be installed instead of the gasoline type as originally intended.

## *Pan American Aeronautical Conference*

A RECENT issue of the *United States Daily* reports that the United States has been invited to participate in a Pan American Aeronautical Conference to be held in Montevideo, Uruguay, in February, according to a statement issued on behalf of the Department of State. The subject to be discussed at this conference will include airports, signals and letters of identification for air pilots, rules for the operation of aircraft, regulations governing customs, and similar questions relating to international aerial navigation, standardization of aeronautical charts and the establishment of a high tribunal to decide judicial questions concerning American aerial navigation.

## *Department of Commerce Activities*

A CONFERENCE to consider problems related to aeronautical legislation and regulation has been called by Secretary of Commerce Robert P. Lamont to be held in Washington, D. C., on December 16 and 17. In his announcement, Secretary Lamont stresses the importance of uniformity of federal, state and municipal air laws as one of the most important factors contributing to the development of air commerce. While substantial progress has already been made along these lines, he points out that important work still remains to be accomplished.

The Airways Division of the Department of Commerce has recently been in communication with the various state commissioners regarding the feasibility of prohibiting erection of power lines adjacent to airports. F. C. Hingsburg, of the Airways Division, in his communications to these commissions, called attention to the hazards existing through the erection of pole lines adjacent to several fields. He pointed out that attempts to have these lines removed usually met with the reply that their construction had been authorized by the state and that the cost of removal should therefore be borne by the government.

## *Commandeering Civil Planes*

A DECREE recently issued by the government of Poland and reported in the *United States Daily* for November 1, provides for the seizure of privately owned airplanes in time of peace as well as in time of war. The Polish Government publishes in December of each year an alphabetical list of persons who are obliged to furnish airplanes when called upon by the recognized authorities. These lists include all persons owning airplanes unless specifically exempted, and owners of non-commercial craft will be listed first, according to the terms of this decree. When determining rates of remuneration for the service demanded, the cost of maintenance of airplane and crew will be taken into consideration as well as fuel consumed during the use of the craft. Travel expenses of the members of the crew are also to be paid.

## *Night Flying Over Paris Prohibited*

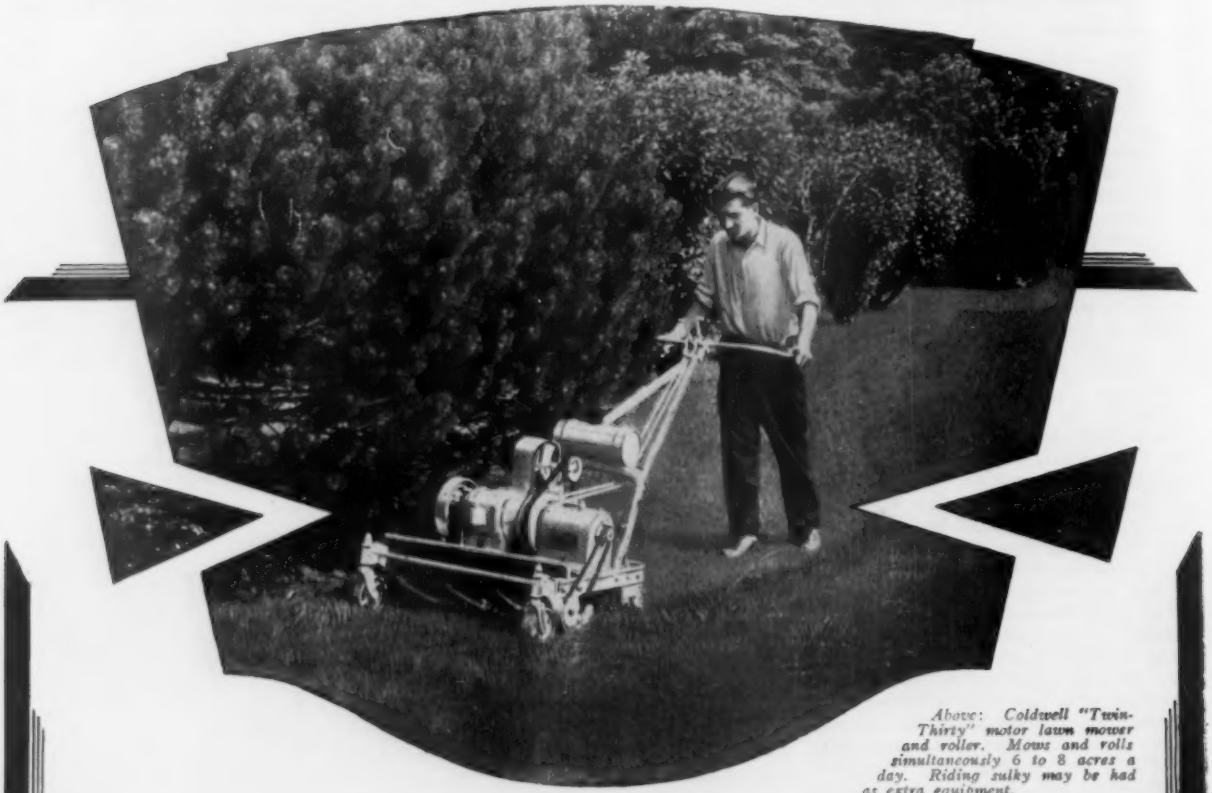
A REPORT received from the Trade Commissioner representing the U. S. Department of Commerce in Paris, France, announces the promulgation of a decree forbidding night flying over that city. It was reported that this action was taken on the advice of the chief of the service of air security, who regards the technical, commercial and sightseeing advantages of such flights as insufficient to compensate the city for the risks involved in making them. So far as known, this is the first case where night flying over any city has been completely prohibited.

## *Two Giant Airplanes*

THE giant German airplane, DO-X, about which a great deal has been published in the press during the past year, has at the time of writing, covered part of its trip from Germany to the United States. At latest reports, this giant airplane was in England, having successfully completed the first legs of its leisurely flight to this country. No effort is being made in this flight to establish a record, and its sole purpose is one of transportation. Because of its great size, the designers of this craft decided that the most practical method of transporting it to the United States would be under its own power. The DO-X holds all airplane records for carrying a large number of passengers, having at one time taken as many as 169 passengers in flight. Its normal capacity, however, is 54, although this figure would have to be drastically reduced for transatlantic flights to allow for the great quantity of gasoline required to com-

SINCE 1867

# COLDWELL POWER



*Above: Coldwell "Twin-Thirty" motor lawn mower and roller. Mows and rolls simultaneously 6 to 8 acres a day. Riding sulky may be had as extra equipment.*

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THE COLDWELL DEPENDABLE POWER LAWN MOWERS AND ROLLERS have been chosen for their outstanding ability to produce the finest lawns with the lowest cost of upkeep.

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Many other new and exclusive features are illustrated and described in the literature which will be sent upon request.

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plete the flight.

About the same time as the news stories announcing the flight of the DO-X, descriptions were received in this country of another German giant airplane, the Junkers G-38. This craft is reported to have been designed to carry 60 persons, while its total weight is about 53,000 pounds. The power-plant consists of two 800-hp. and two 400-hp. Junkers engines, providing a total of 2,400 hp. The wing span is about 144 feet, over-all length about 75, and over-all height about 21 feet. This craft is now being flown on demonstration trips throughout Germany and other parts of Europe. It was designed for the purpose of long-distance transport.

### *Passenger Service Activities*

ON October 26, the first 36-hour transcontinental passenger air service landed its six passengers at the Newark Metropolitan Airport, together with 600 pounds of mail, having left Los Angeles at 8 o'clock the previous morning. The New York *Herald Tribune* reporter describing the arrival struck a note of unconscious humor by remarking casually that the craft arrived "eleven minutes late" on account of strong head winds encountered crossing the Alleghenies. This flight marked the beginning of the new service operated under a Government air-mail contract by Transcontinental and Western Air Company, the consolidation of Western Air Express and Transcontinental Air Transport. On December 1, the passenger air service operated by Eastern Air Transport will be extended to include a daily round-trip between New York and Atlanta, and soon thereafter will be extended from Atlanta to Miami, making all intermediate stops. The New York-Atlanta run will be an integral part of the Southern Transcontinental air route from Boston to Los Angeles, connecting at Atlanta with lines operated by American Airways.

### *Violations of Air Commerce Regulations*

FURTHER evidence of the strong effort being made by the Department of Commerce to enforce rigid compliance with its regulations governing safe flying were reflected in a further increase in the violations charted during the third quarter of 1930. Within this period the Department brought charges of 278 violations of the regulations, representing an increase of 101 over the second quarter and 156 over violations charged in the first quarter of this year. In this quarter—as in the second—violations dealing with acrobatic flying and dangerous flying topped the list of offenses charged. Without doubt the Department will have earnest support in its effort to eliminate these unnecesasry risks.

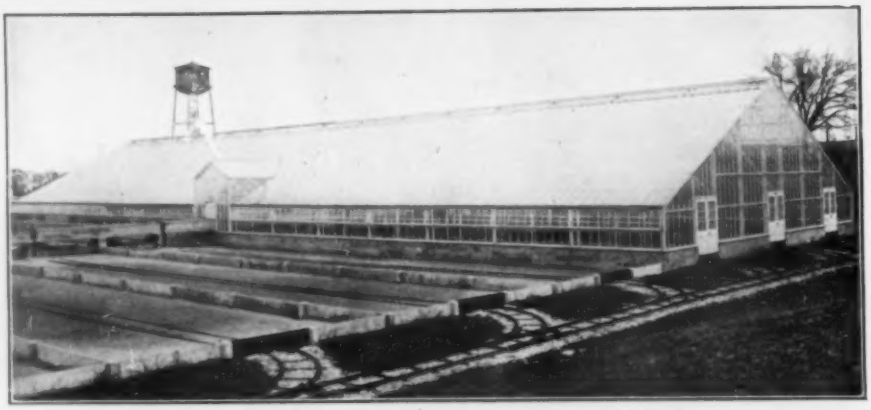
### *Air-Mail Risk Less Than Rail or Ship*

A RECENT investigation made by the Post Office Department brought to light the surprising fact that a lower percentage of air mail is destroyed than is the case with ship or rail transport. Post Office statistics show that air mail is lost only through fire and that the percentage destroyed in this way is infinitesimal compared with the amount of mail transported safely. It is hoped that this record can still further be improved by the adoption of fireproof mail-bags made of asbestos. These are now being tested in one of the air mail routes, and at the time of the announcement thirty of these fireproof bags have been in use for a short time. In making its comparison, the Post Office Department pointed out that when mail is lost at sea or during transport by rail the proportion involved is usually very much greater than is the case in an aircraft accident. It was cited as an example that in the sinking of the Vestris 1,097 sacks of mail were destroyed. this amount being much greater than the total of all mail destroyed by fire during the entire period of operation of the air-mail service since 1918. In the case of a railway mail-car about three years ago just outside of New York, the mail destroyed exceeded the total lost during the entire period of the air-mail service.

*Airview by Airmap Corporation of America, New York*

AIRVIEW OF NEW ORLEANS, SHOWING LOCATION OF AIRPORT

# Master Construction Glass-Overs for Sludge Beds



**Taylor & Woltmann, Engineers; J. E. Simmons, General Contractor; Stanley Pinel, Resident Engineer on construction work. Lord and Burnham supplied and erected the Sludge Bed Glass-Overs.**

## 54,000 Capacity Sludge Bed Glass-Over Operating for Bloomington, Ill.

THIS Sewage Disposal Plant was designed to serve a population of 54,000.

Here is the engineers' statement about the Glass-Overs:

"The under glass drying bed is 87 feet wide and 188 feet long. The sides are 7½ feet and the ridge 24 feet high. The framework is steel of Lord and Burnham's Master Construction. All wood is best of cypress. The superintendent in direct charge is aided by three men, each on 8-hour shifts. Two extra helpers are also on during the day. This plant takes care of both Bloomington and Normal."

To which let us add, we shall be glad to send you a reprint article from *Engineering News-Record* which gives full details. Likewise, by way of evidence, a list of our Glass-Over installations.

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# THE MONTH IN PUBLIC HEALTH

**Conducted by JAMES A. TOBEY, Dr. P.H.**

## *Unemployment and Public Health*

THE prevalence of unemployment this winter may result in an increase in the death rate throughout the country. Poverty always means lack of proper nourishment, a condition which lowers vital resistance and allows the inroads of disease. In calling attention to this serious health problem, an article in *Health*, the bulletin of the Division of Health of Dayton, Ohio, of which Dr. A. O. Peters is Commissioner, states that immediate consideration must be given to relief measures, particularly in the case of children. Such relief should include a plentiful supply of milk, according to this writer, and should be provided in the homes, although it may also be advisable to establish free lunches in the schools.

Poverty and poor health unfortunately cause a vicious circle, the lack of economic resources often promoting illness, and poor health often bringing about poverty. Unemployment is unquestionably a public health as well as a sociological and economic problem and will have to be dealt with by official and voluntary medical, nursing, and health agencies, which should be preparing now for all future emergencies.

## *Meeting of the American Public Health Association*

THE fifty-ninth annual meeting of the American Public Health Association was held in Fort Worth, Texas, October 27-30, with more than 1,000 sanitarians from North America in attendance. A large number of scientific papers were presented before the ten sections of the Association, the best of them to be published later in the *American Journal of Public Health*. A feature of the final session was an address by Dr. Aristides Agramonte, of Havana, who is now the sole survivor of the famous yellow fever commission of 1900, which was headed by Major Walter Reed.

During the coming year, as reported on the "Conventions" page of THE AMERICAN CITY last month, Surgeon General H. S. Cumming, of the U. S. Public Health Service, will act as President of the Association, succeeding Dr. A. J. Chesley, of Minnesota; Dr. William C. Hassler, Health Officer of San Francisco, Calif., becomes President-elect. Other officers elected were Dr. Rafael Silva, of Mexico; Dr. J. W. S. McCullough, of Toronto, Ont., and Dr. A. H. Flickwir, of Fort Worth, as Vice-Presidents, Dr. Louis I. Dublin, of New York, as Treasurer, and Dr. W. S. Rankin, of Raleigh, N. C., as Chairman of the Executive Board. Montreal was selected as the place for next year's convention.

At the meeting of Delta Omega, the honorary public health society, which was held in Fort Worth on October 29, Dr. John A. Farrell, of New York, was elected National President to succeed Dr. C. C. Young, of Michigan. Dr. James A. Tobey was elected Vice-President, and Professor Ira V. Hiscock of the Yale School of Medicine, New Haven, Conn., became Secretary-Treasurer.

## *Christmas Seals to Fight Tuberculosis*

FROM Thanksgiving to Christmas the familiar Christmas seals will be distributed, the proceeds from the sale of these little stamps being used to finance the important health work of the local, state, and national tuberculosis associations. The story of the Christmas seal, which is related in the book "Riders of the Plagues," as part of the narrative of the whole tuberculosis movement, is an interesting one. The first national sale of these seals was sponsored in 1908 by the American Red Cross as the result of a suggestion from Miss Emily P. Bissell, of Delaware, who had read an article on a Danish tuberculosis seal which had been contributed in 1907 to *The Outlook* by the social welfare leader Jacob A. Riis. The first year's campaign, in 1908, brought in $135,000, whereas in recent years more than $5,000,000 has been raised annually by this method.

Since 1920 the Christmas seals have carried the double-barred red cross of Lorraine, the symbol of the tuberculosis societies, in place of the red maltese cross, used by the American Red Cross, since the National Tuberculosis Association, of which Dr. Kendall Emerson is now Executive Secretary, took over the campaign in that year. Not only do the seals cause the sender and recipient to think about good health, but they serve as the most effective means of raising the funds so urgently needed to carry on the ceaseless battle against the White Plague, which, despite a steady decrease in prevalence, is still one of our leading causes of death. If unemployment continues to be a serious problem, it is not inconceivable that there will be a rise in the mortality from this cause. The seals ought therefore to be more widely used than ever this year.


health

PROTECTION FOR YOUR COMMUNITY

Tuberculosis is the enemy of all. Your safety from it lies in the health of everyone else. Education, nursing service, medical advice and children's fresh-air camps are provided by the funds from the sale of Christmas Seals —the little seal of good-will to men. Every dollar you invest in Christmas Seals is devoted to effective health protection.

The National, State and Local Tuberculosis Associations of the United States

FIGHT TUBERCULOSIS with CHRISTMAS SEALS

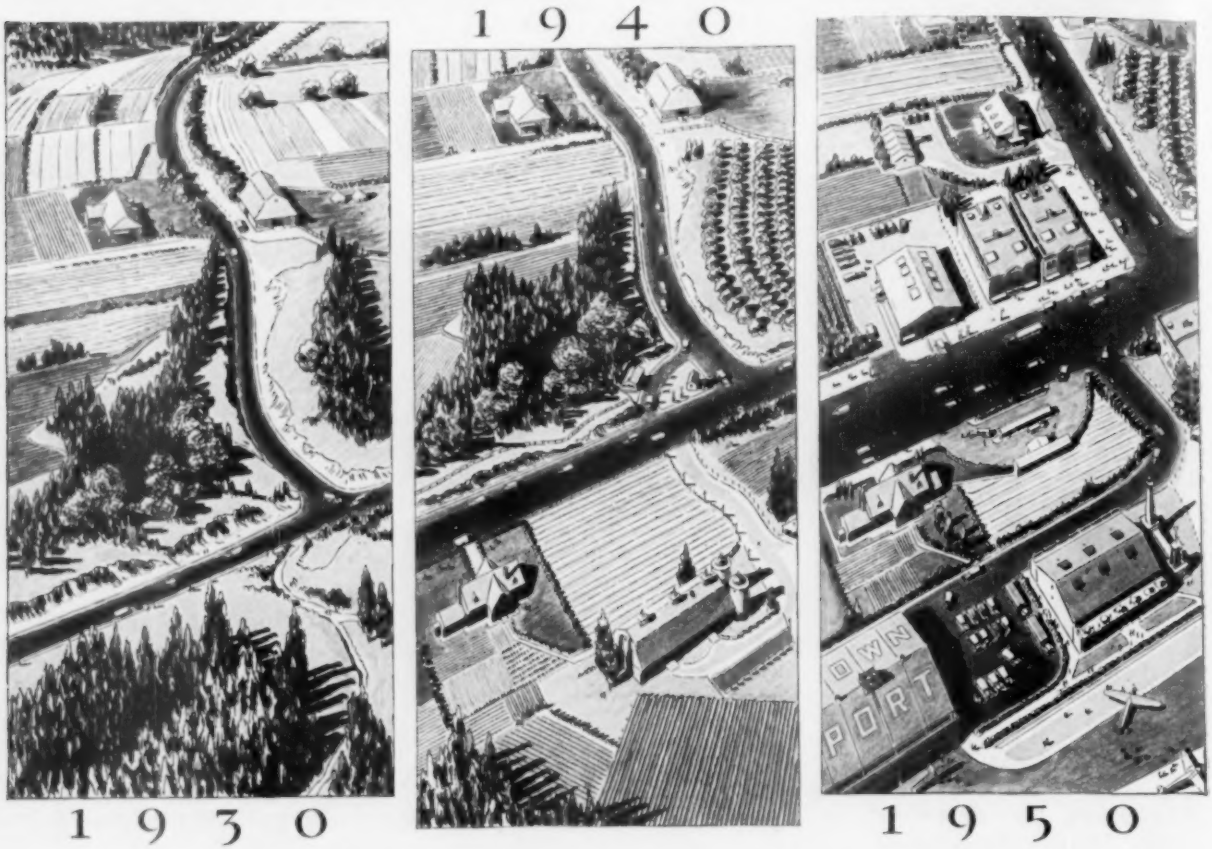

## *Health Books for the Public Library*

EVERY public library should have on its shelves a few popular books on health, hygiene, and sanitation. An annotated list of the 29 modern books which seem most suitable as a nucleus for an effective health library for the intelligent adult lay reader is given in the *Library Journal* for November 1, 1930. This list, prepared by R. S. Patterson, Ph.D., and the writer, is the only published selection of popular health books which any one has had the temerity to make. As stated in the introduction to this article, not all the good books on health are included, but those listed seem to be the most authoritative, accurate, readable and entertaining, and to exhibit other qualities which make them the most suitable as the nucleus for the health section of the average public library. A list of nearly 1,000 health books, technical and popular, may be obtained from the book service of the American Public Health Association, 370 Seventh Avenue, New York.

## *Smoke*

"THE drinking of polluted water is not permitted," says *Chicago's Health* for September 30. "Why then should the breathing of polluted air be condoned? Banish smoke." Since smoke increases in the cold weather when the demand for heat is greater, this bulletin suggests that householders and all others should endeavor to put all of their heating equipment in proper condition so that smoke will be prevented or minimized. Such measures as clean chimneys and

# Roads that grow as you grow

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clean boilers, flues that are not defective, proper grates, dampers correctly adjusted, and no air leakage, are suggested as desirable in the home. Selection of proper fuel is also important, the smokeless fuels including gas, coke and hard coal. Ways to use coal properly are set forth in detail in this bulletin.

That there may be a large loss of light because of city smoke is shown by studies of the United States Public Health Service, mentioned in *Public Health Reports* for August 29, 1930. In New York City, this loss averaged as high as 50 per cent at times. Smoke cuts off the health-giving ultra-violet rays of the sun, and spreads impurities.

### *Voluntary Health Work in Hawaii*

IN Honolulu the Palama Settlement is caring for the health of about 12,000 families, some of whom can pay a little for medical, dental, and nursing care and instruction, but most of whom cannot. Established in 1896 as a chapel, this settlement has gradually acquired more and more health activities until today it has 20 public health nurses, a general medical clinic, and special clinics devoted to heart, skin, orthopedic, prenatal, eye, ear, nose, throat, and venereal diseases, as well as an extensive recreation program and a fresh air camp. Among the approximately 1,500 members of the settlement are Japanese, Hawaiians, Chinese, Koreans, Portuguese, Filipinos, and Porto Ricans, and also many Caucasians. An attractive report of the work of the settlement, of which Philip S. Platt, Ph.D., is now director, has recently been sent to many individuals in the United States with Dr. Platt's "Aloha."

Distant as Hawaii may seem to many persons in our country, this territory has a well-organized health department under the direction of Dr. F. E. Trotter, who has been a regular attendant at the meetings of the Conference of State and Provincial Health Authorities in the United States. Last year a health survey of Honolulu was made by Professor Ira V. Hiscock for the Committee on Administrative Practice of the American Public Health Association, and a 160-page report was issued as a result.

### *Health Examinations for Servants*

THE health of domestic servants is of considerable importance to the families employing them, but not much has ever been done about it. On September 1, however, the city of Newark, N. J., became the pioneer in requiring physical examinations of all domestic servants. On that date there went into effect an ordinance stating that henceforth no person should be employed as a domestic servant until a certificate signed by a licensed physician and setting forth that the servant was free from tuberculosis and other contagious diseases, had been filed with the Health Department. A card is issued by the Health Department for a six-months period to all persons whose examinations are satisfactory.

The system of health examinations for servants was adopted in Newark after several years' experience with semi-annual examinations of all food handlers. Restaurant and kitchen employees where food is cooked must go to the clinics maintained by the Health Department, but others may be examined by private physicians if they desire, although only about 10 per cent avail themselves of this privilege. No person with an open tuberculosis lesion or a positive Wasserman test is permitted to work as a food handler.

Domestic servants covered by the terms of the new ordinance include cooks, maids, butlers, family chauffeurs, cleaners or laundry help, and all employees who reside in the employer's residence. This work in Newark is under the general direction of Dr. C. V. Craster, the Health Officer, and is undertaken by the Tuberculosis Bureau of the Health Department.

### *Negro Health as a National Problem*

WAYS and means of controlling the high mortality of colored people, both in rural regions and in congested urban areas, were the topic of discussion of a special conference of health and welfare workers called by the Surgeon General of the United States Public Health Service on October 29.

An executive committee was named by the conference to consider the year-round health movement.

Plans were made for observance of the next National Negro Health Week early in April, to include the birth date of Booker T. Washington. This is considered a particularly appropriate season for the observance. According to reports to the conference by both Dr. Robert R. Moton, Principal of Tuskegee Institute, and Dr. Monroe N. Work, Director of the Department of Records and Research of that Institute, National Negro Health Week, since it was founded by the late Booker T. Washington, has been doing much good in teaching better habits of living. The time, however, seems to them to have come when substantial aid is needed by the agency if it is to achieve its greatest usefulness in furthering the general welfare of all Americans.

## One Good Nurse Now or a Dozen Future Policemen?

**By HERBERT HOOVER**

**(Excerpts from the President's Address at the opening session of the White House Conference on Child Health and Protection, November 19, 1930)**

OUR country has a vast majority of competent mothers. I am not so sure of the majority of competent fathers. But what we are concerned with here are things that are beyond her power. That is what Susie and John take on when out from under her watchful eye.

She cannot count the bacteria in the milk; she cannot detect the typhoid which comes through the faucet, or the mumps that pass round the playground. She cannot individually control the instruction of our schools or the setting-up of community-wide remedy for the deficient and handicapped child.

But she can insist upon officials who hold up standards of protection and service to her children—and one of your jobs is to define these standards and tell her what they are. She can be trusted to put public officials to the acid test of the infant mortality and service to children in the town—when you set some standard for her to go by.

These questions of child health and protection are a complicated problem requiring much learning and much action. And we need have great concern over this matter. Let no one believe that these are questions which should not stir a nation; that they are below the dignity of statesmen or governments. If we could have but one generation of properly born, trained, educated and healthy children, a thousand other problems of government would vanish.

We would assure ourselves of healthier minds in more vigorous bodies, to direct the energies of our nation to yet greater heights of achievement. Moreover one good community nurse will save a dozen future policemen.

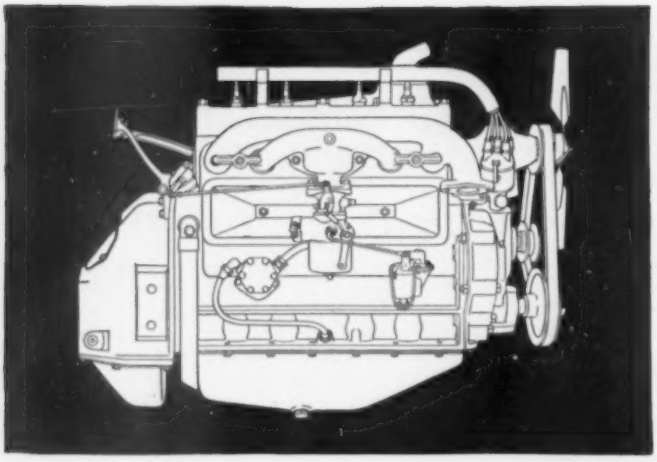
#### Urban Congestion Cheats the Children

In the last half a century we have herded 50,000,000 more human beings into towns and cities where the whole setting is new to the race. We have created highly congested areas with a thousand changes resulting in the swift transition from a rural and agrarian people to an urban, industrial nation.

Perhaps the widest range of difficulties with which we are dealing in the betterment of children grows out of this crowding into cities. Problems of sanitation and public health loom in every direction. Delinquency increases with congestion. Overcrowding produces disease.

Some of the natural advantages of the country child must somehow be given back to the city child—more space in which to play, contact with nature and natural processes. Of these the thoughtless city cheats its children. Architectural wizardry and artistic skill are transforming our cities into wonderlands of beauty, but we must also preserve in them for our children the yet more beautiful art of living.

# Compare . . this 48-horsepower engine—



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*INSPECT, TOO, THE FULL-FLOATING REAR AXLE, RUGGED 4-SPEED TRANSMISSION, 4-WHEEL INTERNAL HYDRAULIC BRAKES AND MANY OTHER NOTEWORTHY FEATURES OF THIS NEW 1½-TON TRUCK. BUY IT COMPLETE WITH STANDARD OR SPECIAL BODY.*

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# THE TAXPAYER'S DOLLAR

**A Monthly Department of Budgeting, Assessment, Taxation, Accounting and Other Phases of Municipal Finance Conducted by A. E. BUCK, National Institute of Public Administration, New York**

## *Programming Public Improvements in Cincinnati*

CINCINNATI is conducting an interesting experiment in the development of a plan for programming public improvements. This plan is now in its fourth year. According to John B. Blandford, Jr., Director of the local Bureau of Governmental Research, it is fairly well established, is working satisfactorily, and already serves as something of an example to other cities.

The plan has four distinctive features: (1) the coordination of the programs of the county, school district, and city government; (2) flexibility of procedure which provides for an annual five-year forecast; (3) integration of current and capital financing; and (4) the technique of annual financial analysis as a basis of programming.

The projected improvements of the three units of government occupying the same area, namely, county, school district, and city, are considered in the program, the purpose being to present a complete picture of the capital needs of the community. The various proposals are coordinated through a committee representing the authorities of the three governmental units. This integration of all the improvement needs of the area represents one of the notable features of the program. In deciding upon the city's improvements, it is the present policy to include one or two of the major developments of the city plan which was formulated and officially approved in 1925. Thus the city planning projects are being gradually carried out as part of the unified improvement program.

A vital part of the programming is a five-year forecast on an annual basis. In this forecast the construction projects are set down by major groups and according to their relative importance. Every year, the forecast is extended one year, so that it is always five years ahead of the present. It merely serves as a general guide to future planning, allowing considerable flexibility in the projects outlined.

It was found that capital financing could not be properly planned without relation to current needs and requirements. So the local Bureau of Governmental Research developed the technique of annual financial analysis as a basis for capital programming. The purpose of the financial analysis is to predict the normal and necessary expenditures of the three governmental units over a period of five years. Thus, it is asserted, the additional expenditures to be allowed for improvements or special expansion of activities can be intelligently determined. The analysis is made along certain general lines, as follows: (1) the trend in the tax duplicate of real and personal property valuations is estimated; (2) the normal operating expenditures for the city, school district, and county are predicted and translated into a total tax rate for this purpose; (3) the annual debt service for interest and principal on existing indebtedness is computed and a tax rate determined; (4) the tax rates as computed in (2) and (3) are added together to obtain the probable total rate if no more bonds were to be issued and on special expansion of activities undertaken; (5) a reasonable maximum tax rate is tentatively assumed; and (6) the difference between (5) and (4) is obtained, which when multiplied by the estimated tax duplicates represents the amount available for debt service on new bonded indebtedness or for special expansion of activities.

The Bureau, in its financial analysis issued during August, 1930, calls attention to several special factors which may change or modify the financial picture of the immediate future. One is the 1931 revaluation of real estate. This revaluation will undoubtedly affect the 1932 and subsequent tax duplicates and consequently the corresponding tax rates. Another factor is the probability of new tax laws. The Ohio Legislature of 1931 is empowered by a constitutional amendment to rewrite the tax laws. A third factor is the special levies for roads or schools which may materially affect the local situation in the near future. In view of these conditions, the Bureau indicates that the three governmental units might issue annually a total of $6,000,000 in bonds without exceeding the assumed maximum tax rate of $21.50 during the period 1931-1935. But it suggests that the same figure should not be regarded as being possible during subsequent years.

## *Budgetary Control Methods in Brunswick, Ga.*

CITY MANAGER E. C. GARVIN of Brunswick, Ga., gives a brief but interesting account in *Public Management* for September of the methods which he follows in exercising budgetary control in that city. He observes that if the accumulated outgo of the city government can be adjusted to the accumulated income in such a way as to maintain continuously a reasonable balance, then a large measure of budgetary control is effectively accomplished. His scheme for doing this embraces a systematic work program for all outgo with monthly allotments, which has been constructed on the basis of a monthly schedule of anticipated income from the different sources. He gives a special emphasis to the scheduling of income. The rate at which the anticipated income flows into the city treasury is the determining factor in making expenditures under the work program and monthly allotments. If the income falls short of the estimates, the expenditures are at once restricted below the monthly rate which would consume the entire appropriations by the end of the year.

Mr. Garvin explains the procedure of limiting the expenditures as follows: "As each month is completed, the actual figures with respect to both receipts and expenditures are entered alongside the estimated and allotted figures. The trend is at once apparent. It is only in the event the actual receipts fall short of expectations that corrective measures are necessary to restore the balance between income and outgo. This is done by reducing, postponing, or omitting authorized activities and purchases in the reverse order of their importance. The controlling factor in both amount and direction is the actual income."

## *Delinquent Taxes Increase in Philadelphia*

ACCORDING to the Philadelphia Bureau of Municipal Research, delinquent taxes in that city are much greater than last year. At the end of three-quarters of the year barely two-thirds of the 1930 tax levy had been collected. The real estate tax levy for this year was slightly over $60,000,000, of which a little more than $40,000,000 had been collected to the end of September. This was at the rate of 5.5 per cent less than the collections for the same period in 1929. Even at the faster rate of the previous year, the delinquent real estate taxes at the end of 1929 amounted to $13,500,000. This was the largest delinquency the city had ever had up to that time, or more than twice the delinquency of the year before. What the situation will be at the end of 1930 the Bureau does not even hazard a guess.

One rather striking fact is brought out, namely, that the current personal property taxes for 1930 do not show as marked tendency toward increased delinquency as do the real estate taxes. The personal property tax levy for 1930 in Philadelphia was approximately $5,350,000.

## *Des Moines Revises Its Debt Policy*

DES MOINES, Iowa, recently issued some bonds of the serial type on which it arranged the maturity dates so as to skip the years in which there were already heavy maturities, thus spreading the annual debt charges more evenly over the future years. Peaks in the debt charges of the city in years past have compelled the authorities to resort to

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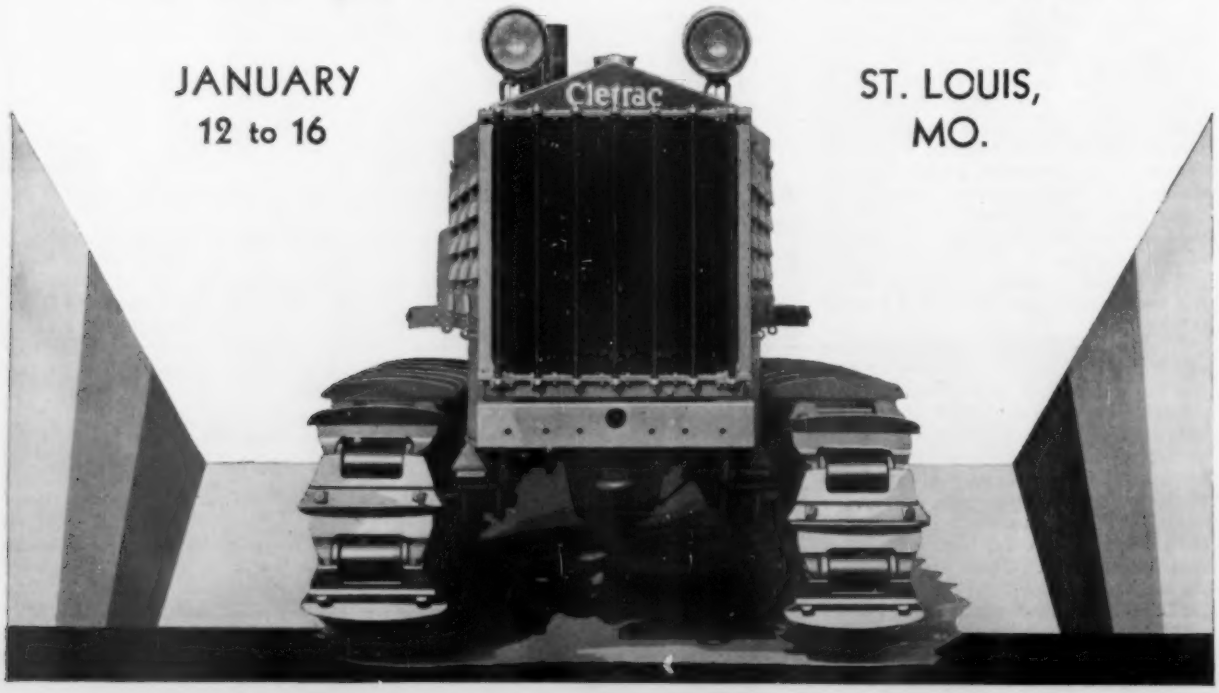

refunding of bonds on several occasions. To avoid this situation, the debt charges of the city, county, and schools, according to C. A. Crosser, of the local Bureau of Municipal Research, have been consolidated and graphically presented. By this scheme it is possible for the city to meet its annual debt charges without any sudden jumps in the tax levy. Thus, the city may retire in 1933 about $300,000 of deficiency bonds dating back to 1896.

### *Centralized Payroll System Recommended for Rochester*

A PROPOSAL for a centralized payroll system for the city of Rochester, N. Y., has been prepared by R. P. VanZandt, of the local Bureau of Municipal Research. At the present time, according to Mr. VanZandt, the city departments and bureaus are making up their payrolls by different methods, all of which are expensive and none of which is very satisfactory. It is proposed that all payrolls be made up through one central payroll division in the Department of Finance by the use of the addressograph and the tabulator. The addressograph would be used to write on the payroll forms all the unchanging items, such as civil service number, employee's name, title of position, and rate of pay. The tabulating machine would print the civil service number as a check against the one written by the addressograph, the amount to be paid to the employee, and the extension of each payroll. This information would be taken from a master payroll card for each employee.

At the present time all salaries and wages are paid by checks, which are written by typewriter, dated by hand with a rubber stamp, and signed by a check-signing machine. It is proposed to use the tabulating card for a check, as is now being done in many private industries. This would permit punching into the body of the card such information as the employee's number, departmental number, function, and amount. A check register could then be printed by the tabulator from the checks as they are issued. Later the canceled checks could be used to perform an automatic audit of the payroll, reconcile the bank balance, and compile wage statistics.

Mr. VanZandt claims that this system will lower the cost of payroll preparation in the city government, that it will provide for increased accuracy, establish better control over payroll expenditures, and permit frequent analyses of labor costs for administrative purposes.

### *Tax Billing Methods in Hinton, W. Va.*

DURING the past three years, Hume K. Nowlan, City Manager of Hinton, W. Va., has developed a simple system of billing taxes in that city. Immediately after the tax rate is fixed by the City Council in August, the Assessor's books are proven by examining each item, of which there are about 15,000. After certain preliminary checkings, extensions are made and the tax bills are prepared. These bills are made out in quadruplicate by the use of typewriters. The duplicate and triplicate copies are mailed to each taxpayer in October and April to advise him of the payments due in November and May. The original copy is surrendered to the taxpayer when the tax is fully paid, as his receipt. The quadruplicate copy is punched to fit the posts of the tax binder and becomes the permanent record filed in chronological order of payment. This copy must check with the daily cash journal. The City Treasurer makes all collections.

Mr. Nowlan says that the system used in Hinton avoids the errors that frequently creep into the ordinary scheme of billing municipal taxes followed by other West Virginia cities. Under this scheme entries are made in long-hand, resulting in errors and misunderstandings due to transposition of figures and illegibility. Furthermore, there is no direct permanent record of the entries on the original tax tickets, the recapitulations being entered only on the record stubs.

### *Analysis of Schenectady's Proposed Budget for 1931*

THE Schenectady Bureau of Municipal Research has issued a pamphlet on the proposed budget for 1931 of that city. This pamphlet, so the Bureau states, is not intended to present an exhaustive analysis of the city's income and expenditures, but has been prepared as a source of reference and general information for the taxpayers. It appears to serve this purpose quite well.

The functions and costs of the city government are clearly set forth in about a dozen pages. The total proposed budget is something over $7,000,000, about $2,500,000 of which is financed from so-called miscellaneous revenues, and the remainder, or $4,500,000, from general property taxes. The total is referred to as the "gross budget," while the part which is financed from general property taxes is called the "net budget." Presumably, the taxpayers are interested mainly in the net budget, hence the distinction.

# The Municipal Bond Market

*By* SANDERS SHANKS, JR.
Editor, *The Bond Buyer*

AN unusual amount of attention has been given by the press this year to the recent bond elections at which something in excess of $400,000,000 of state, county, city and other municipal bond issues were approved out of about $475,000,000 of propositions submitted. On the assumption that these debt authorizations would quickly result in several hundred millions of public money becoming available to relieve unemployment, the newspapers have created the impression that the bond market would be swamped with new bonds during the next few weeks and months. This does not seem likely. None of the bond issues voted were approved merely to aid unemployment. They represent, in the main, necessary improvements which would have been authorized in good times or bad. These bonds will be sold piecemeal over a period of years as the money is needed. The only effect the unemployment situation will have will be that the construction of public improvements will be accelerated slightly and money will be borrowed at a somewhat faster pace than would have been the case normally.

The municipal bond market has suffered a slight setback due to further unsettlement in the stock market, which, in turn, disturbed all markets and created a general feeling of uncertainty and lack of confidence in price levels. That situation has since improved. There is a reasonably large supply of undigested municipal securities on dealers' shelves and a fair volume of authorized new issues coming on sale from week to week for another sixty days. It seems unlikely that we shall witness any material advance in municipal bond prices until the supply-and-demand factor becomes more favorable than it is now. However, it is not at all improbable that the year-end re-investment demand will leave the market reasonably bare of bonds.

The following table, giving the details of recent sales of new issues, will indicate the current level of municipal bond issues:

| Amount | Municipality | Rate (%) | Maturity | Net Basis (%) |
|---|---|---|---|---|
| $10,000 | Watertown, Mass. | 4 | 1-5-yr. (ser.) | 3.73 |
| 11,000 | Indianapolis, Ind. | 4 | 6 2/3-yr. (avg.) | 3.96 |
| 200,000 | Portland, Maine | 4 | 1-25-yr. (ser.) | 4.02 |
| 2,600,000 | Milwaukee Co., Wis. | 4¼ | 1-20-yr. (ser.) | 4.19 |
| 500,000 | Akron, Ohio | 4¼ | 2-26-yr. (ser.) | 4.22 |
| 12,500,000 | Chicago, Ill. | 4 | 3½-yr. (avg.) | 4.36 |
| 145,000 | Lakeview, Mich., Sch. Dist. | 4½ | 15½-yr. (avg.) | 4.38 |
| 923,000 | Harris Co., Texas Navigation Dist. | 4½ | 15½-yr. (avg.) | 4.49 |
| 22,000 | Seneca Falls, N. Y. | 4¾ | 1-11-yr. (ser.) | 4.59 |
| 4,850,000 | State of Arkansas | 4¾ | 15 2/3-yr. (avg.) | 4.70 |
| 30,000 | Robeson Co., N. C. | 5 | 2-yr. | 4.99 |
| 248,000 | Ventnor City, N. J. | 5¼ | 19½-yr. (avg.) | 5.17 |
| 7,407,000 | State of Kentucky | 4½ | 20-yr. | 5.31 |
| 5,250 | Orange Co., Calif. | 6 | 19½-yr. (avg.) | 5.99 |

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THE firm of Samuel Braen's Sons, Contractors, of Hawthorne, N. J.—operating the thirteen Model T-82 General Motors Trucks shown on this page—is one of many organizations making profitable use of this model's ability to make fast time with heavy tonnage.

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# THE CITY'S LEGAL RIGHTS AND DUTIES

**Conducted by A. L. H. STREET, Attorney at Law**

### Debt Limit

*Refunding debt is not creation of new debt within constitutional limit*

If a valid debt should be incurred by a municipality, either by contract or by warrants issued, or by a judgment rendered, then if such judgment, warrant, or contracted obligation be within the constitutional debt limit at the time, it may be refunded without increasing the existing valid indebtedness, as it merely changes the form of such indebtedness, the new form taking the place of the old, which must be surrendered and canceled. (Oklahoma Supreme Court, *in re Chicago, Rock Island & Pacific Railway Co.*, 287 Pac. 1023.)

### Two-Platoon System

*Adoption of two-platoon fire department system held discretionary under statute, not mandatory*

A Rhode Island statute, "authorizing" the city of Pawtucket to establish a two-platoon system for its Fire Department, was declared by the Supreme Court of the state to vest discretion in the municipal authorities. (*McLyman v. Hogan*, 151 Atl. 1.) Hence, a writ of mandamus did not lie against them to compel the establishment of such a system.

The writ was denied on the further ground that the act vested discretion as to the kind of system, if any, that should be adopted. This being a legislative matter, the courts could not interfere. The opinion says on the latter point:

"In the absence of any statutory direction to be followed by the City Council, it might well be that an honest difference of opinion would arise between the Common Council and the Board of Aldermen. For example, one body might desire to have one platoon serve exclusively on night duty, and the other body be of the opinion that the two platoons should alternate on day and night duty. And it is conceivable that other differences of opinion as to the best method of establishing this system might arise. In that event the Court, if the writ were issued, might find itself under the necessity, in order to vindicate its authority and enforce its order, of dictating an ordinance or ordinances to be passed by the City Council of the city of Pawtucket. This is a legislative and not a judicial function, and the writ of mandamus will be withheld when its issuance might lead to an invasion of the legislative field."

### Sidewalk Grade

*City can sue to compel an abutter to restore sidewalk to proper grade*

The owner of an apartment building reconstructed a sidewalk in such way as to afford access across it to a garage. The sidewalk was depressed for a distance of 20 feet. In the case of *Bass v. City of Louisville*, 26 S. W. 2d, 1039, the Kentucky Court upheld the issuance of a mandatory injunction, requiring the property owner to restore the sidewalk to its former grade and condition. The Court said:

"The point is made that the city should have restored the sidewalk to its former condition, have sued appellant for the cost, and have taken its chances on appellant's filing a counterclaim for damages caused by the city's trespass on his property. The city was not required to adopt this roundabout course. Appellant lowered the grade of the sidewalk without authority. Its condition was dangerous. If permitted to remain in that condition, it would subject the city to liability for personal injuries. Its only adequate and effective relief was to require appellant to undo that which he had wrongfully done and restore the sidewalk to its former condition."

### Important Legal Decisions

**involving municipalities, as reported in this department during 1929, are indexed and classified in the 1930 MUNICIPAL INDEX. This reference list, commencing on page 151 of the 1930 INDEX, supplements lists appearing in the 1929 and 1928 volumes, and covering all decisions reported in this department since its inception in 1924.**

### Ice-Making

*City's right to manufacture and sell ice upheld*

One may wonder whether or not manufacture of ice will not be obsolete before all appellate courts come into agreement on the right of a city to engage in the sale of that commodity.

After recently deciding (18 S. W. 2d, 606; see THE AMERICAN CITY for October, page 179) that ice was a public utility and that a city might engage in its manufacture and sale on that ground, the Texas Commission of Appeals in an opinion approved by the Texas Supreme Court concluded that it was not necessary to so declare. The revised opinion holds that ice falls within a Texas statute empowering home-rule cities to manufacture everything "needed or used by the public." (*City of Denton v. Denton Home Ice Company*, 27 S. W. 2d, 119.) The Court remarks:

"The Legislature of this state has seen fit to mention by name numerous things that a home-rule city can do, but the Legislature, evidently taking into consideration the fact that it is well-nigh impossible by name to enumerate all the things 'needed or used by the public,' has provided that such cities may manufacture 'anything else that is needed or used by the public.' The Legislature has not seen fit to define the things 'needed and used by the public,' because in the very nature of such things they must change to suit industrial inventions and developments, and to meet changing social and economic conditions. . . . It can hardly be said, under our modern industrial, social, economic, and domestic conditions and customs, that ice is not a thing needed and used by the public. In fact, it is now so generally needed and used that it is a public necessity."

### Competitive Bidding

*Contract for purchase of municipal supplies held void for lack of competitive bidding*

Defendant village, through its Board of Public Affairs, contracted to buy a lot of new electric meters, turning in old ones, without following a statutory requirement for bids for furnishing the new meters or for the purchase of the old ones. Later the validity of the transaction was challenged. In the meantime, the old meters had been turned over and a payment had been made on the contract for the new ones. The village claimed that this payment and the value of the old meters equaled the value of the new ones received, although it was not claimed that the full contract price was paid. In holding that the city was not liable for the balance called for by the contract, the Ohio Supreme Court said (*Ludwig Hommel & Co. v. Village* of Woodsfield, 171 N. E. 23):

"The statutes limiting the powers of public boards to contract or purchase supplies and materials without public and competitive bidding are enacted for the benefit of the public, to protect the funds derived from public taxation from the possible extravagance and carelessness of those entrusted with supervision of such funds. This Court will not relax the protection which such statutes throw around the public treasury."

*Council order requiring award to lowest bidder precluded purchase without bids*

Where a city council had adopted an order requiring all contracts in excess of $500 in amount to be let to the lowest responsible bidder, a vote authorizing a committee to purchase a motor-driven pumper for the fire department without bids was void. (*Burt v. Municipal Council of Taunton*, 172 N. E. 230.) The Massachusetts Supreme Judicial Court said:

"That order was within the competency of the municipal council. It was a measure calculated to regulate the exercise of the power to make contracts and the conduct of the executive and administrative business of the city. . . .

"Its purpose is to protect the financial interests of the city by preventing fa-

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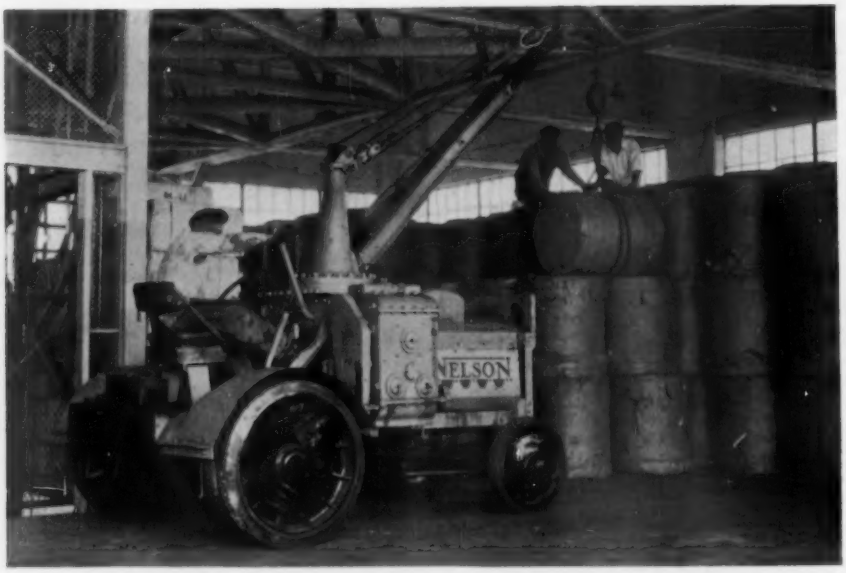


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voritism in awarding contracts and to put a limitation on the otherwise very broad powers of the city officers to bind the city by contract. Its tendency is to give full publicity to proposed city contracts, to establish genuine and open competition upon the same footing after proper advertisement, and to insure honest methods of letting contracts. All these steps conduce to guard the public welfare."

### Garbage

*Restaurant table leftovers held not "garbage" under statute relating to removal*

A statute giving a municipal department of sanitation exclusive power to remove garbage, defined as "kitchen refuse from cooking food," does not prevent the sale by restaurant owners, and the removal by individual buyers, of food products left from the tables in such restaurants, declares the Indiana Supreme Court in the case of *Jansen Farms, Inc. v. City of Indianapolis*, 171 N. E., 199.

The decision in this case in favor of the company, which feeds table refuse to swine, turned upon a conclusion that the refuse was so handled as to avoid any menace to the public health.

### Mandamus—City Treasurer

*City treasurer may be compelled by mandamus to honor warrants*

Where a city treasurer wrongfully refused to honor warrants for wages due employees of the city, a writ of mandamus was the proper proceeding to compel payments by him. (*Commonwealth v. Davis*, 149 Atl. 176; Pennsylvania Supreme Court.)

### Councilman's Interest in Contract

*Councilman held disqualified to receive pay as inspector of sewer work*

A charter prohibition against a councilman's being interested in a contract to which the city is a party, forbids him to receive pay for services as an inspector on a sewer improvement job. (*Strowbridge v. City of Chiloquin*, 280 Pac. 657; Oregon Supreme Court.)

### City Stadium

*City held empowered to build stadium*

Charter power in a city to construct "public buildings" includes power to erect a stadium, according to the conclusion reached by the Court of Appeals of Ohio in Cleveland in the case of *Meyer v. City of Cleveland*, 171 N. E. 606. The Court observed:

"It is difficult to see the difference, from a legal standpoint, between the erection of a stadium and erection of an auditorium, except that one provides for performances and gatherings within doors and the other outdoors. If an auditorium is designed to promote the education, amusement and inspiration of the public, we cannot see why an appropriate building erected for such purposes out of doors, where the assembled multitude may enjoy and breathe the fresh air, may not be more conducive to the public welfare than the auditorium, as it in addition promotes the public health. Evidence was offered in the course of the trial to show some sixty possible purposes for which a stadium could be used. Among them are historical pageants, patriotic celebrations, playground festivals, all-nations carnivals, civic demonstrations, school pageants, mass dramas and dramatic and folk festivals, outdoor opera, band concerts, musical festivals, saengerfests, receptions to famous visitors, mass meetings, community Christmas celebrations, Americanization ceremonies, expositions, and baseball, football, boxing, wrestling, and other athletic contests. It is obvious these purposes promote the public welfare and afford recreation, entertainment and education to the public quite as much as those activities which may be carried on within a public auditorium."

### City Liability—Assessment Bonds

*City held liable on street improvement bonds, having neglected to enforce special assessments*

A Kentucky city of the fourth class, on failing to discharge its duties to spread and collect special assessments to meet street improvement bonds, became liable to holders of the bonds, decided the Kentucky Court of Appeals in the case of *City of Catlettsburg v. Citizens' National Bank*, 27 S. W. 2d, 662. The Court said:

"This is not a case where the bonds were secured by a lien on specific property with right of action in the bondholder, and the statute provided that the bondholder should look alone to the lien, and in no event should the city be liable. Nor is it a case where the city was prohibited from ordering the improvement at its own expense. . . . The case is one where the statute provided for the issue of the bonds of the city itself to the amount of the unpaid assessment, together with the cost of advertising the bonds for sale, printing and engraving the bonds, and all other expenses attending the issue of same, with positive directions that the total amount thereof should be assessed equally by the front feet upon the property fronting, abutting, or bordering on the improvement. The statute further authorized the city in case of deliquency to enforce the collection of the assessments by suit in equity. Though the faith and credit of the city were not pledged absolutely, each of the bonds provided 'for the payment of which said sum and interest the faith and credit of the city of Catlettsburg is hereby held and firmly bound to make, but out only of the sums realized upon the apportionments against said property and lots abutting street to be improved,' etc. Thus the case is one where the city was under the legal duty to take the necessary steps to make and collect the assessments and distribute the proceeds ratably among all the bondholders."

### Town Powers

*Contract for abandonment of bridge over railroad held invalid*

An ordinance of the town of Ft. Lawn, S. C., purporting to permit a railroad company to abandon maintenance of an old bridge over its tracks, was held by the South Carolina Supreme Court to be void as against public policy and beyond the power of the town authorities, in the case of *Seaboard Air Line Railway Co. v. McFadden*, 152 S. E. 809. In part, the opinion reads:

"There can be no question that a town council under the law of this state has the right and authority to supervise and control the streets within the municipality, and to close a street if necessary to the security of its travelers. However, if in closing a street private rights are involved, the courts will award damages when established. If the ordinance in question relied upon by the plaintiff could be upheld as a binding contract between the parties, the most that the plaintiff could claim under it would be the right to abandon the old bridge and be relieved of obligation to keep up the same. Under a strict construction of the ordinance in question, the plaintiff would have no right to destroy the old bridge. The ordinance contains no provision that gives such right, and contains no provision which should be construed as taking away from the town its general police powers in such matters which it has under the law."

### City Liability — Police Negligence

*City held not liable for neglect of police officers to secure medical attention for person found unconscious in street*

Suit was brought against a Kentucky city to recover damages for death of a man found unconscious on a street, because the driver of a patrol wagon and a jailer neglected to secure medical attention for the afflicted man. In reaching this conclusion in the case of *Bogart's Administratrix v. City of Newport*, 28 S. W. 2d, 489, the Kentucky Court of Appeals said that the officers were engaged in the performance of a public duty, and the municipality was not liable. As to personal liability the Court said:

"When and under what circumstances the driver of a patrol wagon, or a jailer, may be under a legal duty to convey a prisoner to a physician for examination and attention, or to summon a physician for that purpose, we deem it unnecessary to decide. Certainly, the duty does not arise until the condition of the prisoner is such as to require medical attention, and this fact is known to the officer, or could have been known by the exercise of ordinary care."

### City Liability—Open Sewer

*Long-continued municipal use of open drain for deposit of sewage does not avoid liability for resulting nuisance*

The right of a landowner to enjoin a village from continuing to use an open drain for the disposition of sewage, resulting in noxious odors, etc., to the annoyance of the land-owner and his family, was recognized by the Michigan Supreme Court in the case of *Gundy v. Village of Merrill*, 230 N. W. 163. The Court applied the legal rule that a right to maintain a public nuisance cannot be acquired by long-continued use.

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

# ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

### Recent Zoning Ordinances

CALIFORNIA.—Belvedere, June 17, 1927.
CALIFORNIA.—Southwest, June 4, 1928.
CALIFORNIA.—Temple, March 24, 1930.
CALIFORNIA.—Walnut Park, July 29, 1929.
CALIFORNIA.—West Hollywood, April 8, 1928.
NEW JERSEY.—Somerville, June 13, 1930.
NEW YORK.—Amityville, August 4, 1930.
NEW YORK.—Ossining (Town), July 21, 1930.
NEW YORK.—Ossining (Village), July 15, 1929.
PENNSYLVANIA.—East Lansdowne, November, 1930.

### Residential District—Reasonableness

CALIFORNIA.—*Del Fanta v. Sherman*, 290 Pac. 1087.—A zoning ordinance of the city of Los Angeles prohibited the use of engines in excess of 5 horsepower in residential districts. The Court takes judicial notice of the fact that oil wells cannot be drilled by means of a 5-horsepower engine or by the use of animals. The ordinance therefore, in effect, prohibits the drilling of oil wells within any residential district of the city. No evidence of the situation in the territory showing that this was reasonable was offered. *Held*, that such an ordinance, without evidence with regard to surrounding population or conditions, must be held to be arbitrary and unreasonable.

### Change in Zones

CALIFORNIA.—*Wheat v. Barrett*, 290 Pac. 1033.—Section 41 of the charter of the city of Piedmont provided that no existing zone should be reduced or enlarged or zones reclassified without submission of the question to the voters of the city. The zoning ordinance of the city was adjudged void. *Held*, that a subsequent zoning ordinance could be enacted by Council without submission to the voters. The previous zoning ordinances having been declared void, the city has no zoning ordinance, and the subsequent ordinance did not reduce or enlarge zones then in existence.

### Home Rule

FLORIDA.—*Metropolis Publishing Co. v. City of Miami*, 129 So. 913.—A zoning resolution is void and of no effect where no legislative authority is shown authorizing the city commission to zone the city. It is not valid under provisions with regard to emergency ordinances.

### Nuisance

MICHIGAN. — *Krulikowski v. Tide Water Oil Sales Corporation*, 232 N. W. 223.—The operation of a motor oils storage plant on unrestricted property in a non-residential section, without the emission of smoke and noxious odors, is not a nuisance.

### Variance—Business in Residential District

NEW YORK.—*Matter of Howard Funding Co., Inc. (Walsh et al.)* reported in *N. Y. Law Journal*, November 1, 1930 (Bronx County).—The refusal of the Board of Standards and Appeals to allow business on the ground floor of an apartment house in a residence district for alleged practical difficulties or unnecessary hardship is valid, although numerous similar applications have been granted, and the property was more suitable for the proposed use than for the prescribed one. The Court will not substitute its discretion for that of the Board.

### Airports

OKLAHOMA.—*Schmoldt v. City of* Oklahoma City, 291 Pac. 119.—A reasonable portion of a public park may be devoted to use as an airport or for recreation, as being a "park improvement." *City of Wichita v. Clapp*, 125 Kans. 100, 263 Pac. 12, cited with approval.

NOTE BY EDITOR.—The correctness in law of the doctrine that a portion of a park may be used as a commercial aviation field, may be gravely doubted, for aviation is essentially a business. In some cases, but not always, the legislature may authorize such a use, but this is virtually a discontinuance of the park use. If actually used only as an amusement, or for access of those seeking amusement or recreation in the park—which would seldom be the case—and then only, would such a use of the land, without its lawful discontinuance as a park, seem justified.

### Filling Station

TEXAS.—*City of San Antonio v. Rubin*, 42 Fed. (2) 107.—An ordinance authorizing the city commissioners to grant or refuse a permit for a drive-in filling station in their discretion, and to refuse it if in their opinion the safety, health, comfort, convenience, order or good government of the city will be adversely affected by the granting thereof, is valid. The evidence submitted held not to warrant a finding that their refusal of a permit in this case was abitrary or discriminatory.

### Residential District

WEST VIRGINIA.—*State ex rel. Howell v. Meador, Mayor of City of Beckley*, 154 S. E. 876.—Under an ordinance making a certain area a residential district in which "no public garage, filling station, store or other industry of any kind or character" shall be permitted, the authorities may be compelled by mandamus to grant a permit for the erection of a church.

### Zoning and Land Values

William J. Pedrick, Executive Vice-President of the Fifth Avenue Association, and member of the Zoning Committee of the city of New York, is the author of an article in the *New York Record and Guide*, entitled "Zoning New York City: A Story of Rising Land Values."

### Boards of Appeal in Cincinnati

The Zoning Board of Appeal of Cincinnati, Ohio, has issued, in typewriting, its Annual Report for 1929.

### Bibliography of Zoning and Planning

The National Housing Association of New York has prepared a bibliography on Recent Books and Reports on Housing, Zoning and Town Planning.

### Boards of Standards and Appeals

Edward M. Bassett has written an article for the New York City newspapers with regard to the Board of Standards and Appeals. Prepared with relation to the situation in New York, it is of general interest.

### Zoning in the District of Columbia

The United States Printing Office has issued a pamphlet of the Zoning Regulations of the District of Columbia as revised to August 1, 1930.

## Town-Planning Help from Local Libraries

"HOW Librarians May Help Cities to Plan Out Their Future Development" was the subject of the address given by G. L. Pepler, a past President of the Town Planning Institute, before the Annual Conference of the Association of Special Libraries and Information Bureaus at Oxford, England, on September 21.

Planning has of recent years made remarkable headway in England. Some 550 British authorities are preparing town planning schemes embracing 5,500,000 acres. Mr. Pepler suggested that local libraries should follow up the publication of a regional planning report or town plan by drawing the attention of local inhabitants to the information contained in the libraries as to the history and evolution of the place. He explained how the reports of the regional committees contained much information of value to engineers, local historians, local government officials and others. It was suggested that the library of every secondary school ought to possess a copy of any local survey and planning report. This was done by the Education Committee of the Kent County Council in the case of the work of the East Kent Regional Survey.

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# MUNICIPAL AND CIVIC PUBLICATIONS

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### Airports

Their Location, Administration and Legal Basis. By Henry V. Hubbard, Miller McClintock and Frank B. Williams, Harvard University Press, Cambridge, Mass. 1930. 206 pp. $3.50.

This is the first volume of the Harvard City Planning Series, one of the activities of the Graduate School of City Planning of Harvard University, established last year. Two or three volumes of the series are expected to appear each year. The present one is important as dealing with a topic of such rapid development that scientific and comprehensive knowledge has lagged behind the growth that it should direct and control. It is intended to render assistance to public officials and other community representatives in meeting airport problems in which the community is concerned. There are three divisions to the work: "The Airport in the City Plan," by Professor Hubbard, Chairman of the School of City Planning, and Howard K. Menhinick, Instructor in City Planning; "Airport Administration," by Dr. Miller McClintock, Director of the Bureau for Municipal Research and of the Erskine Bureau for Street Traffic Research, Harvard University, and Paul Mahoney, now of the Transportation and Communication Department of the Chamber of Commerce of the United States; and "The Law of Airports," by Frank B. Williams, Esq., of the New York Bar, and a contributing editor of THE AMERICAN CITY. Much of the basic information for the first two sections was obtained through personal visits of Mr. Mahoney to 85 airports in 32 states during a period of 2½ months.

### Byrne's Inspector's Pocket Book

This 244-page booklet is a revision by Samuel T. Goldsmith, Instructor, College of the City of New York, under date of 1930, of the volume entitled "Inspection of the Materials and Workmanship Employed in Construction," by Austin T. Byrne, which had appeared in three previous editions, 1898, 1902, and 1911. It presents the duties of the inspector, the characteristics and defects of construction materials, methods employed in preparing the materials for use, the manner of placing the prepared materials in the structure, and suggestions to inspectors to assist them in securing faithful compliance with plans and specifications, which latter the book is intended to supplement, but not supersede. Typewriter typography is used in the book. $3.00. (Apply to the Gillette Publishing Co., 221 E. 20th St., Chicago, Ill.)

### Unemployment

*The Survey* for November 15 contains a group of five articles examining various aspects of the unemployment problem: "The Burden of Mass Relief," by Gertrude Springer; "Some Plans for Steady Work," by Beulah Amidon; "Organized Labor's Program," by Louis Stark; "Facing the Coming Winter," by Joanna C. Colcord; and "Taxes and Private Relief Funds," by A. W. McMillen. This issue also contains a reading list of articles on unemployment which have appeared in *The Survey* since its special number, "Unemployment and the Ways Out—Our Stake in Steady Jobs," which appeared April 1, 1929. Copies of *The Survey* are 30c each. (Apply to 112 E. 19th St., New York.)

### The Business Value of the Merit System

National Civil Service Reform League, 521 Fifth Avenue, New York. 30 pp.

By presenting a series of quotations from various independent sources, a concrete and convincing case for the dollar and cents value of the civil service merit system is made out. The items presented illustrate the comparative cost of non-merit employees, merit employees and those in private employ. Several instances are given of the political jobs created but abandoned when the merit system was required.

### Speed Traffic and Reduce Accidents

J. Rowland Bibbins, consulting engineer, of Washington, D. C., writes in the *Electric Railway Journal* for October on the advantages of short signal cycles, having discovered from a study of pedestrian pyschology in relation to traffic and transportation that long cycles will not be observed by all walkers. 2-page reprint. (Apply to Mr. Bibbins, 2301 Connecticut Ave., Washington, D. C.)

### Manual on Street Traffic Signs, Signals and Markings

In preparing the original draft of the Manual for the National Conference on Street and Highway Safety in 1928-1929, the American Engineering Council collected detailed data and analyzed the existing practices in more than 100 cities in 35 states. The Manual as it now stands embodies a number of changes, made in the light of experience with its operation, and it was unanimously approved by the Third National Conference on Street and Highway Safety, held in May, 1930, which recommended its adoption by municipalities. 63 pp. (Apply to the National Conference on Street and Highway Safety, 1615 H St., N. W., Washington, D. C.)

### The Better Use of the City Street with Special Reference to Parking On and Off the Street

"There are only two methods of street traffic relief," writes Miller McClintock, Director of the Albert Erskine Bureau of Street Traffic Research, in this bulletin of the Planning Foundation of America. "One is the intelligent planning and replanning of physical facilities of American cities—the other is the intelligent control of the use of these facilities." Possible facilities and methods of regulation are discussed. 15 pp. (Apply to the National Conference on City Planning, 130 E. 22d St., New York.)

### Proceedings, 17th Annual Convention, Pennsylvania Chiefs of Police Association

The addresses and reports which were presented at the meetings of the Seventeenth Annual Convention of the Pennsylvania Chiefs of Police Association, held in Bradford, Pa., July 22, 23 and 24, 1930, are published in a booklet of 85 pages. (Apply to the Secretary-Treasurer, J. N. Tillard, Chief of Police, Altoona, Pa.)

### The Mosquito Problem of Connecticut and How to Solve It

By W. E. Britton, Ph.D., State Entomologist. Dr. Britton has revised the bulletin which he prepared in 1915, which also was published by the Connecticut State Board of Health. Various species of mosquitoes are described, methods of control are outlined, and legislation enacted in Connecticut with a view to the elimination of mosquitoes is quoted. 16 pp. (Apply to the State Health Department, 8 Washington St., Hartford, Conn.)

### How Much Do Clean Streams Cost?

Among the recent publications of the Portland Cement Association is a reprint of an article written by Dr. William D. Hatfield, Superintendent of the Decatur Sanitary District (Illinois). 4 pp., size 4 x 9, illustrated. This pamphlet contains a brief, elementary discussion of the costs involved in the construction and operation of a sewage disposal plant. Copies may be obtained from the Portland Cement Association, 33 W. Grand Ave., Chicago, Ill.

### Recent Books and Reports on Housing, Zoning and Town Planning

Publication No. 62 of the National Housing Association is a 34-page bibliography of material received since October, 1929. 50c. (Apply to the Association, 105 E. 22d St., New York.)

### Charges and Method of Making Charges for Professional Services; Charges for Engineering Service

Nos. 5 and 6 of the Manuals of Engineering Practice published by the American Society of Civil Engineers have been compiled by the Special Committee on Fees of the Society. No. 5 contains a bibliography. 56 and 11 pp. respectively. 50c each. (Apply to the Society, 33 W. 39th St., New York.)

### A Thoroughfare Plan for Boston

To the numerous already-existing technical studies covering various phases of the city's physical development, the Boston City Planning Board has added this elaborate 230-page illustrated Thoroughfare Plan, which it has prepared with the aid of Robert Whitten, consultant. The plan is well organized. Under the head, "General Considerations," such matters as express roads, parkways, and adequate pedestrian protection are discussed. Preceding the presentation of major projects recommended, and a construction program, is "A Traffic Analysis and Forecast." A history of the Boston street system is included, as written by Elizabeth M. Herlihy, of the Planning Board; and among the appendices is a financial plan covering the first and second construction periods, by Gaylord C. Cummin, civic consultant. (Apply to City Planning Board, Boston, Mass.)

### A Plan for the Ridgewood of the Future

The Planning and Park Commission of Ridgewood, N. J., a suburban community of about 12,000, has had the assistance of the Technical Advisory Corporation, of New York, in preparing this comprehensive plan, which it recommends for adoption by the Village Commissioners as the Master Plan of Ridgewood. 77 pp., plus two detailed maps. (Apply to the Technical Advisory Corporation, 15 Park Row, New York.)

### Manual for Studies of the Cost of Administration of Criminal Justice in American Cities

National Commission on Law Observance and Enforcement. 38 pp. Apply to S. P. Simpson, Consultant, 61 Broadway, New York.

The President's Commission on Law Enforcement realizes both the great value and the great difficulty in getting adequate data on the cost of criminal justice in our multitude of independent governmental units. It is seeking to enlist the aid of bureaus of municipal research and graduate students of the social sciences in making studies in individual cities. To encourage and guide this work, the present manual is offered. The information it seeks falls under five headings: community data, cost of police, cost of prosecution, cost of criminal courts, and cost of penal or corrective treatment. Under each the minimum essentials are indicated and suggestions made as to the calculation and division of capital or joint costs and similar accounting difficulties. Suggestions as to the sources of such data are also given.

### Crime and the Criminal Law in the United States

By Harry Best. The Macmillan Co., New York. 615 pp. $6.50.

This is an ambitious effort to survey in a single textbook virtually all the problems of crime and punishment in the United States. The first fifteen chapters relate to legal classifications of crime. Many of these chapters are, however, less than a page. This is followed by a hasty survey of criminal procedure. The two succeeding sections are devoted to such topics as the extent and cost of crime, social data relating to criminals, forms of punishment, and penal institutions, and there is a concluding section on possible methods for the control or reduction of crimes, most of which is related to the improvement of criminal procedure. The material is presented compactly and compendiously, but not too invitingly. JOSEPH MCGOLDRICK.

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### City Bosses in the United States

By Harold Zink. Duke University Press, Durham, N. C. 370 pp. $4.00.

This collection of brief biographies of twenty of the better-known city bosses in the United States was made in search of clews to the secrets of their success. The author finds that they have few common characteristics. Some were jovial, others taciturn; some generous, others selfish; some industrious, others lazy. All, however, had entered politics at a very early age and most had been poor or lived among the poor in their youth. Ten of the eighteen on whom data could be had, died millionaires; but "Doc" Ames left $1,413 and "Big Tim" Sullivan died insolvent. It is a well-written, interesting portrait gallery.

### Municipal Golf Courses

More than half of the 272 municipal golf courses which are maintained in 179 cities in this country are self-supporting, F. Stuart Fitzpatrick, Manager of the Civic Development Department of the Chamber of Commerce of the United States, states in the foreword of this 32-page mimeographed report. The report has been compiled to facilitate the handling of requests for information on the subject. Single copies free upon request. (Apply to the Chamber of Commerce of the United States, Washington, D. C.)

### Regulation of Miniature Golf Courses

The Municipal Administration Service has compiled this 8-page multigraphed report on data received from the leagues of municipalities of California, Colorado, Illinois, Michigan, New Jersey, Oklahoma, Minnesota, Utah, Virginia and Wisconsin. 10c. (Apply to the Municipal Administration Service, 261 Broadway, New York.)

### New York State Parks, 1930

Just a glimpse of the cover of this alluring booklet, with a green-tinted view of a tree-lined lake, makes one want to plan trips and start off on them at once. Many photographs of scenery and outdoor activities, and maps and descriptions, convince one that New York State's parks are well worth investigating, for they range from seashore to mountain, lake and forest. 130 pp. (Apply to the State Council of Parks, State Office Bldg., Albany, N. Y.)

### Municipal Control of Street Trees

*The Municipality*, published by the League of Wisconsin Municipalities, carries in its November number a discussion of forestry practice in Wisconsin cities and villages, as well as in other cities which have definite policies with regard to tree planting and care. Recommendations are given and a suggested tree ordinance is included. 6 pp. Single copies of *The Municipality* are 25c. (Apply to 114 N. Carroll St., Madison, Wis.)

### Chambers of Commerce — A National Viewpoint; Consolidation of Organizations

These two addresses were presented at the sixteenth annual meeting of the National Association of Commercial Organization Secretaries in Tulsa, Okla., in October, and have been published by the Chamber of Commerce of the United States at the request of the Board of Directors of NACOS. "Chamber of Commerce—A National Viewpoint" was given by D. A. Skinner, Secretary of the National Chamber. Ralph Bradford, Assistant Manager of the Commercial Organization Department of the National Chamber, discusses "Consolidation of Organizations." 16 pp. each. 5c per copy in lots of less than 100; 4c per copy in lots of 100 or more. (Apply to Mr. Skinner, Secretary, Chamber of Commerce of the United States, Washington, D. C.)

### Fire Prevention Exhibits

Photographs of successful state and county fair exhibits, window displays and other exhibits used to dramatize fire prevention are presented in a 15-page pamphlet. Single copies 10c; special price for quantity orders. (Apply to the National Fire Protection Association, 60 Batterymarch St., Boston, Mass.)

### Tax Racket and Tax Reform in Chicago

By Herbert D. Simpson, Institute for Economic Research, Chicago. 287 pp. $1.50.

This amazingly thorough, yet modestly priced, little volume presents a startling but temperate picture of the tax system of Chicago which recently humiliated that proud metropolis. By a careful comparison of tax and true values, the author found that not only were tax values 35 per cent of fair sale value, but individual properties varied from 1 to 103 per cent of fair value with an average deviation from assessment of 40 per cent too much or too little. The rest of the volume describes the political and social situation that fostered this inequality, the storm of public protest in 1927, the measures taken to provide relief, and other constructive steps which might yet be taken. Dr. Simpson's study is carefully buttressed with tables and charts.

### Building and Loan Construction Standards

*Specifications for Residential Buildings.*—By John M. Wyman, Associate Editor, *American Building Association News*. American Building News Association, Cincinnati, Ohio. 1930. 188 pp. in limp leather. Illustrated. $2.00. Order direct.

Permanent expansion in the field of occupant-owned, one- and two-family homes in America depends, and is going to depend increasingly, upon the extent to which maintenance and repair charges can be kept within reasonable bounds. This depends upon sound and practical building requirements. Both are beginning to be recognized as controllable by the building and loan associations of the country through the operation of building material and construction standards. The present volume is the result of extended effort by the *American Building Association News*, which has had, for this work, cooperation of technical societies, national trade associations, and United States Government bureaus. Specifications are complete and detailed, and provide for a variety of materials. They have already been adopted by some building and loan associations and state leagues of associations.

### Structures for Public Assemblages

The following articles in the *Engineering News-Record* for November 6, 1930, describe means by which designers have met special problems of seating, space utilization and economy in three stadiums and an auditorium: "Stadium Houses Classrooms" (Birmingham, Ala.), by W. N. Woodbury, Division Engineer, Virginia Bridge & Iron Co., Birmingham, Ala.; "A Timber Stadium at Miami," by Jacob Feld and Lionel K. Levy, Consulting Engineer and Architect, New York, N. Y.; "Municipal Auditorium at New Orleans; and "Concrete Stadium for $6.60 Per Seat." The *News-Record* is 25c per copy. (Apply to the McGraw-Hill Publishing Co., 10th Ave. and 36th St., New York.)

### "Adventures in Citizenship"

Starting on the assumption that government is an adventure which some citizens have yet to discover, and that the cause of municipal housekeeping will be greatly advanced when all citizens do discover it, the Boston League of Women Voters recently embarked upon a unique undertaking. Through its Municipal Affairs Department, it prepared two "kits," one containing adequate equipment on the history and charter of the Boston city government, the other devoted to city departments of health, relief, libraries, schools, and the budget.

These kits were carefully designed to supplement a series of weekly luncheons at which the functioning of public services was discussed in detail. In order that the greatest effectiveness of the work might be realized, and that intelligent interest aroused might be carried on to the furthest point of practical effectiveness, the League announced its willingness to arrange more advanced group programs wherever these are wanted. Because of the potential value of the kits to non-members in Boston and elsewhere in the study of their cities, these are made available at the nominal sums of 10 cents and 15 cents respectively, from the League at 3 Joy Street, Boston, postage to be added.

### Standards and Specifications for Nonmetallic Minerals and Their Products: 1930

Miscellaneous Publication No. 110 of the U. S. Department of Commerce has been prepared by John Q. Cannon, Jr., under the direction of A. S. McAllister, Chief of the Division of Specifications of the National Bureau of Standards. 680 pp. $2.75. (Apply to the Superintendent of Documents, Washington, D. C.)

### Social Work Year Book, 1929

Edited by Fred S. Hall. Russell Sage Foundation. New York. 1930. 600 pp. $4 from THE AMERICAN CITY, net.

Hitherto there has been no comprehensive periodical record of organized effort in the now wide field of social work. In launching the "Social Work Year Book," which for the present will be a biennial publication, the Russell Sage Foundation does so "in the belief that the progress of social work will be advanced thereby, its unity increased and popular understanding of its aims enlarged." The present substantially made volume is presented in two parts. Part 1 consists of topical articles by outstanding workers in the profession. These are classified according to the specialized field in which they belong. Part 2 is a complete directory of national social service agencies.

### The Second Twenty Years at Hull-House

By Jane Addams. The Macmillan Co., New York. 414 pp. $4.00.

This interesting volume has a rather broader scope than recounting the later history of Hull-House. It is replete with Miss Addams' autobiographical reflections. There is much space devoted to the women's movement and the aspirations for world peace. The period covered includes such diverse but significant achievements as the establishment of the Federal Children's Bureau and woman suffrage. It is also marked by such epoch-making social experiments as the restriction of immigration and prohibition. Especially on these latter movements Miss Addams' thoughtful observations and trenchant comments are welcome. The work is illustrated by a series of delightful woodcuts but, unfortunately, has no index.

### Municipal Salaries in Philadelphia, 1915-30

The Bureau of Municipal Research of Philadelphia has prepared "a statistical study of standards of compensation in the city service of Philadelphia in 1915, 1920, 1925 and 1930" as an aid to the Civil Service Commission of the city and for the information of the Mayor, the members of Council, and the general public. A number of comparisons are made of the rates of pay of municipal workers in Philadelphia with those in various other large cities. 62 pp., mimeographed. (Apply to the Bureau, 311 South Juniper St., Philadelphia.

### A Treatise on Cost Accounting in Local Governments

Under the title of "Costing Schemes for Local Authorities," J. H. Burton, of Manchester, England, has written an excellent treatise on cost accounting in English local governments. It is merely introductory to the subject, since it is but a small book covering only 125 pages. However, the treatment is quite adequate from the standpoint of the reader who wants to know how costing is to be applied in general to municipal undertakings. There are eight chapters in the book, treating such subjects as costing in relation to local authorities, application of costing to specific undertakings and services, the accounting procedure in a model scheme of cost accounting, cost statements and statistics and their uses, overhead charges and their apportionment, the application of machinery and modern devices in costing, and the audit of cost accounts.

Governmental "costing" in England, as in the United States, is a recent development. It has been the outgrowth mainly of the period since the World War. In 1922 the Ministry of Health

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began to require costing in tuberculosis institutions and maternity hospitals. Then the Ministry of Transport required cost records to be kept in respect to various types of roads. In 1925 the Ministry of Health introduced a costing scheme for the activities of the cleansing departments of local governments. Now, the Institute of Municipal Treasurers and Accountants has made costing a definite and special subject to be taken by all applicants in both the intermediate and final grades of its qualifying examinations.

A. E. Buck.

## Other Reports Received

Chicago, Ill.—Annual Report of the Treasurer for the Fiscal and Calendar Year, 1929. 56 pp.

Chicago, Ill.—Opinions of the Corporation Counsel and Assistants from April 16, 1928, to April 15, 1929. Vol. XVII. 680 pp.

Cook County, Ill.—Annual Message of Anton J. Cermak, President, Board of Commissioners, for the Fiscal Year of 1929. 66 pp.

Hartford, Conn.—Annual Report of the Department of Engineering, for the year ending March 31, 1930. 81 pp.

Little Falls, N. Y.—Annual Report, Board of Public Works, 1929. 48 pp.

Los Angeles, Calif.—Annual Report, Board of Public Works, for the year ending June 30, 1930. 143 pp.

Wayne County, Mich.—Manual, 1930. Board of County Auditors. 366 pp.

# CONVENTIONS—WHEN AND WHERE

**(Figures in parentheses following the name of the convention city indicate the estimated attendance, other than local.)**

December 1-5.—New York.
*American Society of Mechanical Engineers. Annual meeting.* Secretary, Calvin W. Rice, 29 West 39th Street, New York.

December 1-5.—Memphis, Tenn. (850)
*The Asphalt Institute. Ninth Annual Asphalt Paving Conference.* Managing Director, J. E. Pennybacker, Crystal Building, 801 Second Avenue, New York.

December 1-5.—Memphis, Tenn. (850)
*Association of Asphalt Paving Technologists. Meeting in conjunction with Ninth Annual Asphalt Paving Conference of The Asphalt Institute.* Secretary-Treasurer, C. A. Mullen, 980 Saint Antoine Street, Montreal, Que.

December 2-4.—Chicago, Ill.
*American Association of Pools and Beaches, Inc., Annual convention.* Executive Secretary, Lyle L. Jenne, 725 Bulletin Building, Philadelphia, Pa.

December 2.—New York.
*American Institute of Weights and Measures. Annual meeting.* Secretary, W. E. Bullock, 33 Rector Street, New York.

December 8-10.—Grand Forks, N. Dak.
*North Dakota Water and Sewage Works Conference. Annual meeting.* Secretary-Treasurer, A. L. Bavone, Bismarck, N. Dak.

December 9-10.—Washington, D. C.
*National Rivers and Harbors Congress.* Secretary-Treasurer, S. A. Thompson, 824 Colorado Building, Washington, D. C.

December 11-12.—Winter Park, Fla. (500)
*Florida League of Municipalities. Semi-annual meeting.* Secretary-Treasurer, E. P. Owen, 1201 Lynch Building, Jacksonville, Fla.

December 11-12.—Washington, D. C. (250)
*National Research Council—Highway Research Board. Annual meeting.* Director, Roy W. Crum, B and 21st Streets, Washington, D. C.

December 12-13.—Asbury Park, N. J. (175)
*New Jersey Public Health and Sanitary Association. Annual meeting.* Secretary, Dr. Edward Guion, Box 418, Atlantic City, N. J.

January 12-16.—St. Louis, Mo. (25,000)
*American Road Builders' Association. Annual meeting. (Distributors' Day—January 10.)* Secretary-Director, Charles M. Upham, National Press Building, Washington, D. C.

January 12.—New York.
*Society of Terminal Engineers. Annual meeting.* Secretary-Treasurer, Charles H. Newman, 30 Broad Street, New York.

January 15-17.—Washington, D. C.
*American Engineering Council. Annual meeting.* Executive Secretary, L. W. Wallace, 26 Jackson Place, Washington, D. C.

January 15.—Boise, Idaho. (100)
*Idaho State Chamber of Commerce. Annual meeting.* Secretary, L. F. Parsons, 529 Idaho Building, Boise, Idaho.

January 19-23.—Lafayette, Ind. (500)
*Purdue Road School.* Address: Professor Ben H. Petty, Engineering Extension Department, Purdue University, Lafayette, Ind.

January 19-23.—Detroit, Mich.
*Society of Automotive Engineers. Annual meeting.* Secretary, John A. C. Warner, 29 West 39th Street, New York.

January 20-23.—Waco, Texas. (300)
*Texas Water Works Short School. Annual session.* Address: V. M. Ehlers, Secretary of the Southwest Water Works Association—Texas Section, Austin, Texas.

January 21-23.—New York. (1,000)
*American Society of Civil Engineers. Annual meeting.* Secretary, George T. Seabury, 33 West 39th Street, New York.

January 22.—New York. (75)
*American Society of Civil Engineers—City Planning Division. Annual meeting.* Secretary, Harold M. Lewis, 130 East 22nd Street, New York.

January 22-23.—Topeka, Kans. (100)
*Kansas Engineering Society. Annual meeting.* Secretary, J. M. Averill, Route 7, Topeka, Kans.

January 23-24.—New York. (100)
*American Social Hygiene Association. Annual meeting.* General Director, Dr. William F. Snow, 370 Seventh Avenue, New York.

January 25-28.—San Francisco, Calif. (400)
*Associated General Contractors of America. Annual convention.* Managing Director, E. J. Harding, 1150 Munsey Building, Washington, D. C.

January 26-29.—Louisville, Ky. (350)
*National School Supply Association. Annual convention.* Executive Secretary, J. W. McClinton, 176 West Adams Street, Chicago, Ill.

January 27-31.—New York.
*American Institute of Electrical Engineers. Annual winter convention.* National Secretary, F. L. Hutchinson, 33 West 59th Street, New York.

January 27-29.—Pittsburgh, Pa.
*American Society of Heating and Ventilating Engineers. Annual meeting.* Secretary, A. V. Hutchinson, 51 Madison Avenue, New York.

January 28-30.—Rockford, Ill.
*Illinois Society of Engineers. Annual meeting.* Secretary-Treasurer, Winfred D. Gerber, 1001 West Oregon Street, Urbana, Ill.

January 28.—Harrisburg, Pa.
*Pennsylvania State Chamber of Commerce. Annual meeting.* General Secretary, George E. Foss, Harrisburg, Pa.

February 4-6.—Montreal, Que.
*Engineering Institute of Canada. Annual meeting.* Secretary, R. J. Durley, 2050 Mansfield Street, Montreal, Que.

February 4-6.—Pittsburgh, Pa.
*National Paving Brick Manufacturers Association. Annual meeting.* Managing Director, G. F. Schlesinger, 1245 National Press Building, Washington, D. C.

February 5-7.—Nashville, Tenn. (125)
*American Water Works Association—Kentucky-Tennessee Section. Annual meeting.* Executive Secretary, F. C. Dugan, 532 West Main Street, Louisville, Ky.

February 5.—Danville, Va.
*Virginia State Chamber of Commerce. Annual meeting.* Managing Director, LeRoy Hodges, 708 Grace-American Building, Richmond, Va.

February 11-13.—Lawrence, Kans. (400)
*Kansas Water Works Association. Annual meeting.* Secretary-Director, E. A. Boyce, State Board of Health, Lawrence, Kans.

February 17.—New Haven, Conn. (100)
*Connecticut Society of Civil Engineers. Annual meeting.* Secretary, C. M. Blair, Box 235, New Haven, Conn.

February 18-20.—Atlantic City, N. J. (3,000)
*Association of Highway Officials of North Atlantic States. Annual convention.* Secretary-Treasurer, A. Lee Grover, Secretary of the State Highway Commission of New Jersey, Trenton, N. J.

February 18-20.—Ann Arbor, Mich. (600)
*Conference on Highway Engineering—University of Michigan. Annual convention.* Secretary, R. E. Morrison, University of Michigan, Ann Arbor, Mich.

February 21-26.—Detroit, Mich. (10,000)
*National Education Association—Department of Superintendence. Annual meeting.* Executive Secretary, Sherwood D. Shankland, 1201 16th Street, N. W., Washington, D. C.

February 23-24.—Chicago, Ill. (75)
*American Concrete Pipe Association. Annual convention.* Secretary, M. W. Loving, 33 West Grand Avenue, Chicago, Ill.

February 24-26.—Milwaukee, Wis. (800)
*American Concrete Institute. Annual convention.* Secretary, Harvey Whipple, 2970 West Grand Boulevard, Detroit, Mich.

February 24-27.—Wichita, Kans. (25,000)
*Southwest Road Show and School.* Manager, F. G. Wieland, Exposition Building, Water and Williams Streets, Wichita, Kans.

March 2.—Huron, S. Dak.
*South Dakota Commercial Secretaries' Association. Annual convention.* Secretary, G. R. McArthur, Huron, S. Dak.

March 11-13.—Windsor, Ont. (300)
*American Water Works Association—Canadian Section. Annual meeting.* Secretary, A. U. Sanderson, Island Filtration Plant, Toronto, Ont.

April 12-27.—Milan, Italy.
*International Exhibition for the Safety of Highway Traffic.* Address: The Royal Automobile Club of Italy, Corso Venezia, 69, Milano, Italy.

April 15.—Norfolk, Va.
*American Society of Civil Engineers. Annual spring meeting.* Secretary, George T. Seabury, 33 West 39th Street, New York.

April 20-23.—Birmingham, Ala.
*American Society of Mechanical Engineers. Semi-annual meeting.* Secretary, Calvin W. Rice, 29 West 39th Street, New York.

April 20-21.—Marlin, Texas. (5,000)
*East Texas Chamber of Commerce. Convention.* Secretary, Hubert M. Harrison, Longview, Texas.

April 23-24.—Roanoke, Va. (125)
*Southern Commercial Secretaries' Association. Annual meeting.* Secretary-Treasurer, Karl Lehman, Orange County Chamber of Commerce, Orlando, Fla.

April 28-May 1.—Atlantic City, N. J. (3,000)
*Chamber of Commerce of the United States of America. Annual meeting.* Secretary, D. A. Skinner, 1615 H Street, N. W., Washington, D. C.

May 4-9.—Washington, D. C. (2,000)
*International Chamber of Commerce. Biennial Congress.* Manager of the American Section, John P. Gregg, Connecticut Avenue and H Street, N. W., Washington, D. C.

May 25-29.—Pittsburgh, Pa. (1,000)
*American Water Works Association. Annual convention.* Secretary, Beekman C. Little, 29 West 39th Street, New York.

June 1-5.—Berlin, Germany. (1,000)
*International Federation for Housing and Town Planning. Joint meeting with the International Housing Association.* Organizing Secretary, H. Chapman, 25 Bedford Row, London, W. C. 1., England.

June 1-5.—Berlin, Germany. (1,000)
*International Housing Association.* General Secretary, Dr. Hans Kampffmeyer, Hansa Allee 27, Frankfurt am Main, Germany.

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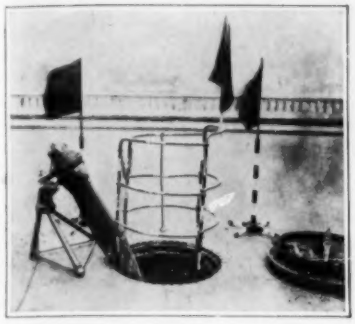
# NEWS AND ILLUSTRATIONS

**Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings**



THE COPPUS VANO BLOWER IN USE IN A MANHOLE

## Expelling Sewer Gas from Manholes

A quick and efficient method of overcoming the hazards of manhole work by expelling accumulations of carbon monoxide gas has been employed by the Street Department of the city of New York. It consists of a light-weight blower known as the Coppus Cable Manhole Ventilator, which is made by the Coppus Engineering Corporation Worcester, Mass.

The blower is of the propeller type, one of the outstanding features of which is the application of stationary guide vanes of peculiar design beyond the propeller. The air current leaving the propeller is radially subdivided by the individual guide vane blades and taken up by them without shock. The guide vane blades, which have a curvature increasing in the direction of the rotation of the propeller, concentrate the air current and give it a further acceleration inside the stationary guide vanes, so that a considerable part of the pressure is produced in the latter. A large part of the end thrust is thus taken up by the stationary guide vane casing. The air streams, into which the flow of air has been subdivided by the guide vane blades, leave the guide vane casing, on account of the kinetic energy, slightly rotating and convergent toward the axis so that the smallest section of the air flow is reached beyond the guide vane casing. This makes the Vano blower very efficient for use with hose extension as employed in sewer work.

Another advantage of this equipment is its light weight and portability. Weighing less than 100 pounds, it can be quickly set up and placed in operation by one man. Attachment for the electric current is made at any convenient outlet.

## The Manufacture of Puddled Wrought Iron Pipe

In 1836, a group of men, trading as Keim, Whitaker & Co., erected in the city of Reading, Pa., a rolling mill and nail foundry from which has developed the Reading Iron Company, today the largest producer of genuine puddled wrought iron pipe, manufacturing 552 different sizes of tubular products, ranging from 1/8 inch to 24 inches in diameter, suitable for every pipe requirement.

Puddling is a process good for the production of wrought iron from pig iron by the action of the flame assisted by agitation, whereby most of the silicon, manganese, carbon, phosphorous and sulphur are removed by oxidation.

The process consists of (1) making bottom and fixing, in which crop ends of wrought iron pipe are charged upon the hearth of the furnace, and by means of an oxidizing flame a basic oxide of iron is produced, forming a hard, smooth surface; (2) firing, which is continuous throughout the refining period; (3) charging the pig iron; (4) melting, in which the puddler endeavors to fuse the whole charge as nearly at one time and at as low a temperature as possible. This is accomplished by moving the pigs about with a square iron rod about 7 feet long, thereby exposing fresh surfaces to the flame and to the dissolving influences of the slag bath. The next step (5) is adding roll scale to the bath, in which enough pure oxide of iron is added to chill the molten mass to such a degree that the bath of molten iron thickens. 6. Puddling. As the temperature increases, the bath of slag and iron again becomes fluid, rapid decarbonization takes place, giving off a large volume of carbon monoxide gas, which causes the bath to swell and to produce what is known as the high boil. Vigorous agitation is important throughout the process to produce uniform conditions in all parts and prevent any portion from continuing to rest upon the relatively cold bottom. When the elimination of the carbon is nearly completed, the boiling subsides and the apparent volume of the slag is reduced. This is known as the drop. The grains of iron, each enveloped in slag, form clusters, from which the excess slag drains off, and rest on the bottom.

The iron at the bottom of the furnace is naturally cooler than that above, necessitating turning over the spongy mass, and, while this is being done, it is parted into individual balls and then drawn and taken to the squeezer, which forces out the excess slag and produces a roughly cylindrical mass or "bloom." While still hot, this is immediately passed to the bar mill, where it is rolled into puddle bar, from which genuine puddled wrought iron skelp is made.

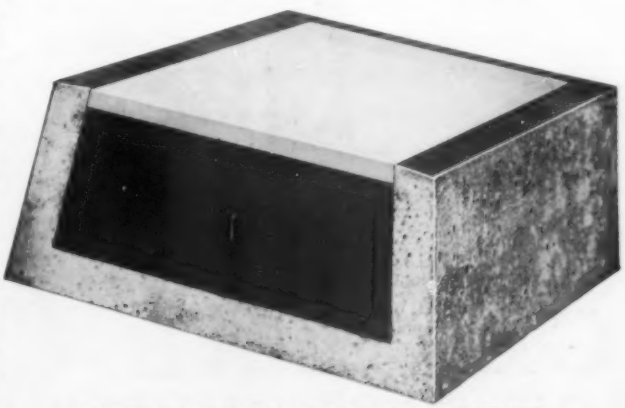
The present equipment of the Reading Iron Co. for manufacturing genuine puddled wrought iron pipe consists of ore mines, a blast furnace, 85 double puddle furnaces; 36 skelp mills, two universal plate mills for rolling skelp, and three buttweld and five lapweld mills. Through the possession of this equipment the company is able to control the production of its entire output from ore mine to shipping platform.

## Rubber Road Markers

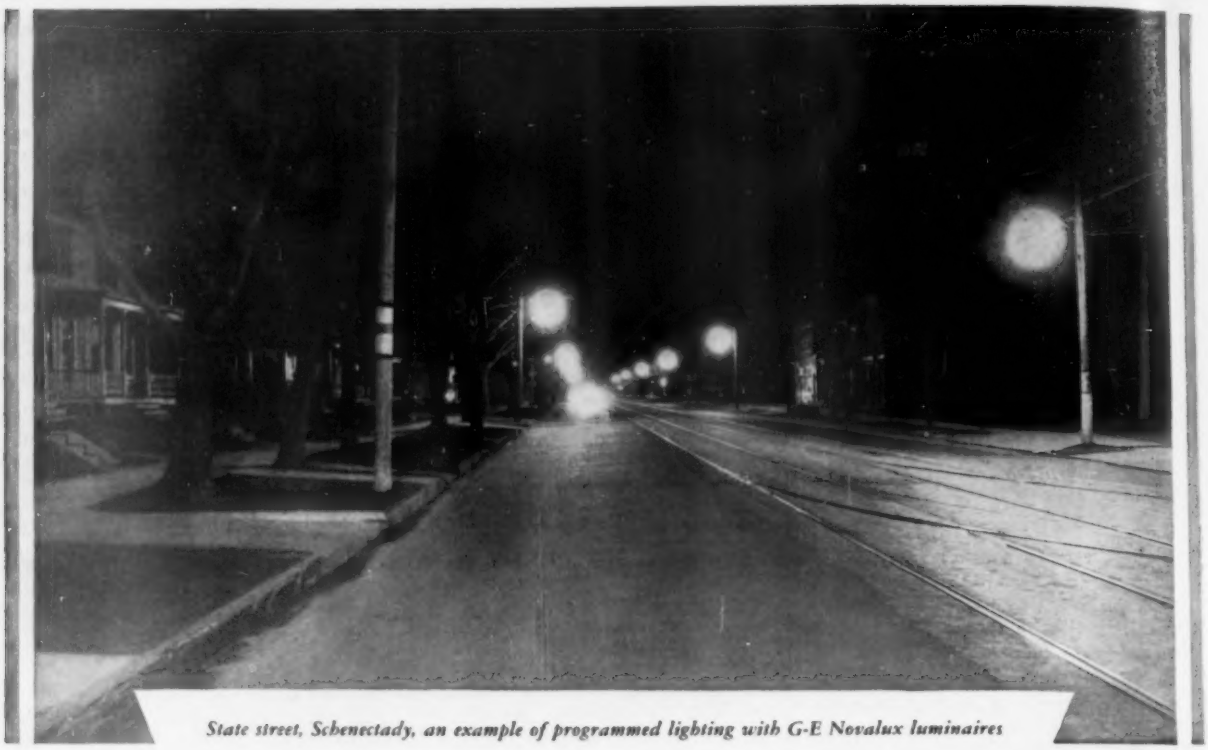
Modern developments in the rubber industry and modern research in the chemistry of rubber have made possible the development of the Bradley road marker, made by the Bradley Road Marking Co., 503 Callahan Bank Building, Dayton, Ohio.

The upper surface of the marker, which is made in either white or brilliant yellow, is a specially compounded material selected for permanent color brilliance, resiliency, and heat- and abrasion-resistance. This upper surface is perfectly united to the base, so that the two layers become practically one and have resisted the most severe separation tests.

The lower layer or base of the marker is a special combination of fiber, rubber and other elements that have proved their ability to give maximum resistance to the deteriorating action of the road and weather conditions. The block as a whole has the property of remaining flat and non-expansionable while embedded in the paving material, under wide variations of temperature and humidity and under the stress of heavy loads.



SECTION OF BRADLEY ROAD MARKER IN CONCRETE, SHOWING DOVETAIL INLAY



*State street, Schenectady, an example of programmed lighting with G-E Novalux luminaires*

# Progress is Built on Programs

THAT'S why cities are being zoned, streets improved, and suburbs extended.

To follow out these programs, the average municipal expenditure of American cities of 30,000 inhabitants or more was increased 93.4 per cent between 1919 and 1927.

And because few cities undertook street-lighting programs, the average increase in lighting expenditure during the same period was only 48.6 per cent. That's why street lighting is lagging 44.8 per cent behind the *programmed* improvements.

The proportion for light was far too small to begin with. It has continued to drop although there has been an immense increase in the need of correct illumination—in the volume and speed of night traffic.

Correct street lighting, with all its advantages of public safety, commercial growth, and rise in property values, can be attained only when planning commissions make it a major item on their programs.

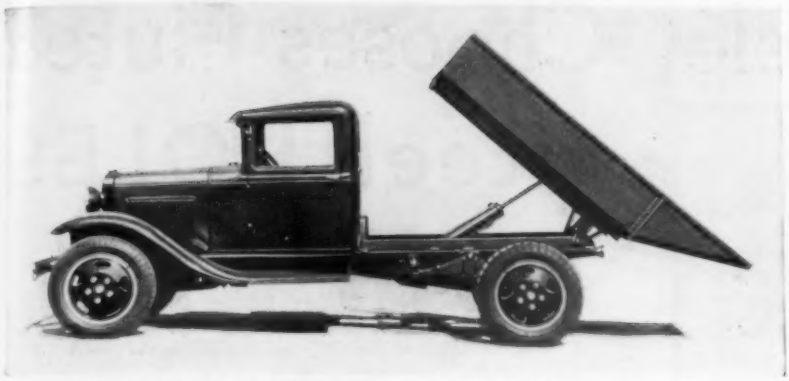
Specialists of the General Electric Company are at the service of city officials and commissions in making preliminary surveys and suggesting scientific programs of proper modern lighting. Their experience in other cities will be of assistance in building a lighting program for the communities that you serve.

Join us in the General Electric program, broadcast every Saturday evening on a nation-wide N.B.C. network

720-155

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES



WOOD TYPE C-28 DUMP BODY WITH MODEL AP HYDRAULIC HOIST, WHICH MAKES AN EFFICIENT DUMPING UNIT FOR GARBAGE

## A New Line of Dump Bodies for Light Chassis

A complete new line of dumping units for light chassis has been announced by the Wood Hydraulic Hoist & Body Company, Detroit, Mich. From this line, users of light dump-trucks can select a hoist and dump body suited to practically every need. Four hoist models are offered built on the hydraulic principle developed ten years ago by the Wood organization. The bodies, known as the C-type, are constructed of a 10-gage high-resistant steel, electrically welded. The sides are flanged to prevent bulging or bending. The tailgate is strongly reinforced, swinging either up or down, and is adjustable and lowers flush with the body floor. It presses against the end of the body sheet, making a tight-fitting joint when closed. The tailgate posts are rigidly built from one piece of pressed steel turned in and welded to the body sides as a brace.

The body subframe is built of two 4-inch channel longitudinals and five 3-inch channel cross-members. Low mounting is one of the important new features of these bodies. Several types have full-length running-boards covering the rear dual wheels. The complete line includes contractors' bodies, garbage bodies, concrete mix and gravity bodies.

The Wood type C-12 body is designed for heavy-duty service. It has full-length running-boards and steel side braces to stiffen the sides.

The type C-4 contractors' body is well designed and strongly built for hauling sand, gravel, and general material.

## New Insulation for High-Voltage Cables

A new type of rubber insulation which entirely does away with corona and ozone troubles on high-voltage cables insulated with rubber compounds has been announced by the Simplex Wire & Cable Co., 201 Devonshire Street, Boston, Mass.

This insulation, which is known as Anoroc (corona from another angle) is not claimed to be ozone-proof, ozone-repelling or ozone-resisting. It goes at the problem from another angle. It prevents the formation of ozone in or about a cable at normal operating voltage, making all ozone-proof or ozone-resisting qualities superfluous. It removes the only objection to rubber insulation for high-voltage conductors and retains all of the electrical, chemical and physical characteristics which have made rubber the most adaptable and desirable insulation for cables.

The efficiency of protecting cable insulation from ozone has been amply demonstrated by laboratory tests fully substantiated by actual service under operating conditions.

## Photographing Important Night Events Facilitated

Of special interest to officials and others concerned with the photographic recording of important gatherings, celebrations and other matters of municipal interest, such as traffic conditions, crime scenes, and circumstances of accidents, where these occur at night, is the new Photoflash lamp developed by the Incandescent Lamp Department of the General Electric Co. These produce the instantaneous flash for a photograph in a manner that does not annoy the subject, or harm the surroundings by enveloping them in a dense cloud of smoke. All the products of combustion are retained within the glass bulb. There are no glowing sparks to be scattered, nor any powder to blow away or become moist in windy or rainy weather. Furthermore, the lamp is silent in operation.

The bulb and base of the lamp are of the same size as the standard 100-watt Mazda. Within the clear bulb is a quantity of crumpled aluminum foil, surrounded by pure oxygen. Ignition is caused by a tiny filament of 1.5-volt rating. The life of the lamp is 1/50 of a second. It can be operated either on the regular lighting circuit or with a two-cell flashlight battery, combined with a metal reflector. For large groups and areas several lamps should be used.

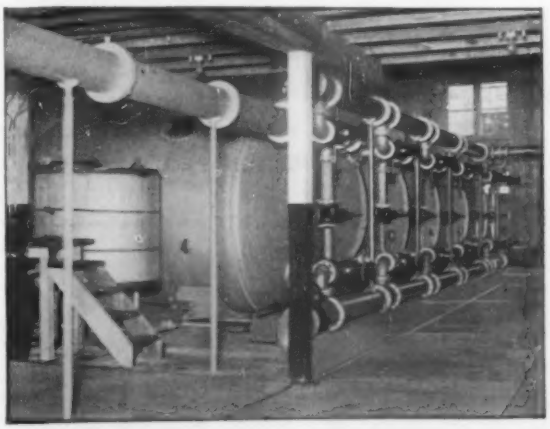
## Officials of Chain Belt Company

The Chain Belt Co., Milwaukee, Wis., has announced the following elections and appointments: C. F. Messinger, Vice-President and General Manager; Brinton Welser, Vice-President and a Director; A. R. Abelt, Secretary; H. S. Greene, General Sales Manager; W. H. Brandt, Assistant to the President.

## Modern Swimming Pools

The modern swimming pool bears little resemblance to the old fill-and-draw tank type. It is a precise and beautiful mechanical unit, designed to achieve the maximum in appearance, sanitation, safety and economy of operation. In the building of modern pools, architecture and landscaping must not only be in keeping with the surroundings, but must also be developed with full consideration of utility and economy; special knowledge must be brought to bear on the filtration and circulation of the water; expert judgment is called for in designing the concrete tank; and the location of filters and laundry equipment is of the utmost importance. Locker layout, methods of handling patrons, lighting, space required for comfort facilities, drainage, showers, checking of valuables, suit and towel purchase and storage, and ticket systems, are all troublesome details that increase the possibility of costly errors.

Every swimming pool designed and constructed by Alexander, Becker & Schoeppe, Inc., 1602 Spruce Street, Philadelphia, Pa., is made to fit the particular situation. Every factor is carefully noted and fully weighed in order that the completed plant shall be beautiful to the eye, the water always in perfect condition, and every element coordinated to assure economical and effective operation. The policy of this company is to use the highest quality of materials and apply the best principles of modern construction to the concrete work, circulation system, filtration and plumbing. Bath-houses and other above-ground construction can then be handled as modestly or as elaborately as desired.



CRYSTAL POOL, PHILADELPHIA, FILTERS PURIFY 1,250,000 GALLONS OF WATER EVERY SIX HOURS

# Now Berkeley Chooses Fluted Steel POLES

Berkeley, California, is noted for its beautiful thoroughfares

REPLACING other poles and individual lighting standards, Union Metal Heavy Duty Poles have transformed the appearance of San Pablo Avenue in Berkeley, California.

These 32-foot poles perform their numerous duties safely and with a minimum of attention. Slender, straight and uniform, they represent the ideal method of carrying electrical services through city streets.

In Berkeley the Union Metal Poles are equipped with twin street lighting units, cross arms, trolley span-wire supports and concealed cable-risers. In numerous other cities they are also used for a multitude of duties—often at a great saving in cost and always to the betterment of street appearance.

If you are not familiar with this advanced type of pole write for complete information.

THE UNION METAL MANUFACTURING COMPANY
GENERAL OFFICES AND FACTORY • CANTON, OHIO
SALES OFFICES: New York, Chicago, Cleveland, Boston, Los Angeles, San Francisco, Seattle, Dallas, Atlanta

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# UNION METAL DISTRIBUTION POLES

## Cramer Opens Consulting Office

Robert Cramer, who was formerly Chief Engineer of the Sewerage Commission of the city of Milwaukee and who was recently made Consultant for that Commission, has opened a consulting engineering office in Milwaukee. Mr. Cramer will specialize in sewage disposal plants, sewerage systems, the utilization and disposal of industrial wastes, the design and construction of power-plants, laboratory service, valuation and reports.

## A New Highway Mower

Especially designed and built for cutting grass and weeds along highways, the Centaur highway mower, made by the Centaur Tractor Corporation, Greenwich, Ohio, is a flexible, close-coupled, durable one-man outfit that will go and cut almost anywhere. It is very easy to control, the method being new, with features that make mowing more effective and protect the machine from breakage and wear. It gets into ditches and odd corners easily, dodges obstructions, cuts over berms and curbs and so close to fences that it eliminates much of the hand cutting necessary where a clean job is needed.

CUTTING THE DOWN SLOPE WITH A CENTAUR HIGHWAY MOWER

In operation, the shoe control lever by the driver's seat is set so as to hold the shoe off the pavement, as much as 12 inches above the ground, if necessary, to cut over a berm or curb. The operator places his foot on the cutter bar control lever, turns on the power and starts to mow. If a stone shows up in his path, he simply presses the lever, and the cutter bar is raised to glide over the stone and drop down again. The shoe itself is entirely off the pavement, preventing wear on that part of the machine.

With the flexibility provided in the hitch, the cutter bar can cut any angle between 30 degrees up and 30 degrees down. When an obstruction is reached, the cutter bar is raised to the upright position from the driver's seat, and the swathboard pivots free, so that the cutter bar can be dropped directly behind it, leaving only a fringe of grass uncut.

If the cutter bar hits a sudden obstruction, it has sufficient strength to hold the tractor without breakage. The operator backs up, clears the cutter bar and passes by the obstruction. The automatic clutch brake is an indispensable feature on hills or wherever it is necessary to stop instantly. It is simple and positive and, because it is located at the clutch, its braking power is multiplied forty times at the ground wheels.

UP SLOPES MAY ALSO BE CUT TO 30 DEGREES

## New Shop for Large-Size Centrifugal Cast Iron Pipe Nears Completion

A new centrifugal pipe shop for large sizes of Mono-Cast pipes up to and including 24-inch diameter is nearing completion at Acipo, Ala., and, according to the announcement of the American Cast Iron Pipe Company, Birmingham, Ala., it is scheduled to begin operations on a commercial scale by the first of the year. The new shop is of steel fireproof construction and modern in every particular. It will have a potential capacity of 200 tons of centrifugally cast pipe per shift, and is so designed that it can be operated 24 hours per day.

During the relatively short time Mono-Cast pipe in the smaller sizes has been in use, it has made considerable headway, there being more than 2,000 miles of it now in service. The new shop is the outgrowth of a demand for the larger sizes of Mono-Cast pipe, which will be made in 14-, 16-, 18-, 20- and 24-inch diameameters. It will be cast in 16-foot lengths, of the bell-and-spigot type with a bead cast on the spigot end.

By casting 16-foot lengths instead of 12-foot lengths, the pipe is cheaper to lay, as there is 25 per cent less labor digging the bell holes and making joints. As compared with 12-foot pipe, there is also a saving of 25 per cent of the weight of the bells, because in a 16-foot pipe the weight of a bell is distributed over 4 more feet of pipe.

According to the American Cast Iron Pipe Co., the Mono-Cast pipe can be materially reduced in weight and metal thickness without sacrificing any of the safety factors for a given working pressure, because of the uniformity and greater strength of the metal. It is further stated that engineering tests have demonstrated that a Mono-Cast pipe 25 per cent lighter in weight and 25 per cent thinner in metal section than a pit cast pipe will withstand greater internal pressure.

## Clay Joins Truscon Steel Co.

Truscon Steel Co., Youngstown, Ohio, has announced the appointment of Wharton Clay, an architectural and contracting engineer, to its staff. Mr. Clay was formerly Sales Engineer, U. S. Gypsum Co., and Commissioner of the Associated Metal Lath Manufacturers. His duties with Truscon will include the promotion of the friendly service which Truscon aims to extend to the profession and trade, the extension of contacts with larger projects which involve permanent building products, and the development of fields for the application of new ideas in merchandising.

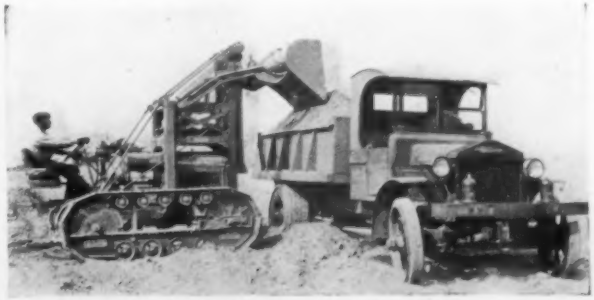
## A New Shovel for Dirt-Moving

The new Trackson high shovel for the Model 20 McCormick-Deering tractor is now in production by the Trackson Company, 1322 South First Street, Milwaukee, Wis. Equipped with either crawlers or wheels, this shovel digs, moves, and loads materials in one continuous operation with only one man. Although it has a high dumping clearance for loading big trucks, the new machine also has all the advantages of a low-lift shovel for digging.

The installation of the Trackson high shovel on the tractor does not interfere in any way with the use of the tractor for drawbar work. The bucket is controlled by a single lever, and an automatic clutch release eliminates the possibility of raising the bucket too high. One of the outstanding improvements of this new shovel is the fact that the bucket is held close to the tractor when it is in the digging position as well as when raised to its maximum height. The result is better balance and greater effectiveness for digging.

The front-end drive of the new shovel gives the operator complete control of the bucket, whether the tractor is in operation or standing still, with the clutch disengaged. This is an exclusive Trackson feature, and its advantage is in digging in hard materials, since it effects independent crowding action.

Several new features have been incorporated in the hoisting assembly of the new shovel, such as a Twin-Disc clutch of a type which was especially recommended by the manufacturers for this job, and a special worm gear running on extra-heavy ball- and roller-bearings, which reduces the operating speed of the hoisting drums.



THE NEW TRACKSON HIGH SHOVEL MOUNTED ON A McCORMICK-DEERING TRACTOR

*Fresno (Calif.) Stadium on the night of April 26, 1930, lighted for the West Coast Relays. Now, the projectors are adjusted for football. Grant Field, Georgia Tech, is similarly equipped*

# TURN ON THE LIGHT
## for Football . . Track . . Hockey . . Baseball

*Hockey on the rink at Union College, Schenectady, N. Y. In the spring, up go the nets, and lo, there are two tennis courts ready for playing at night*

*Night at Washington Park, home of Indianapolis, Ind., club of the American Association. One of the regularly scheduled league games. A simple adjustment of the projectors turns the park into a football field*

**LIGHT your field for football, and it's available at night for track, hockey, or other sports and events. With additional towers and projectors, you can also use it for baseball. It simply means—adjust the projectors for the requirements of the sport, and turn on the lights.**

**When you plan lighting, consider this adaptability. Get details from the G-E lighting specialist in your district. You can reach him through the nearest G-E sales office. Ask for a copy of GEA-1206, our latest publication on the subject, or write the Lighting Division, General Electric Company, Schenectady, N. Y.**

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**For playing regularly scheduled league games at night, General Electric, in 1930, lighted the fields of the following baseball clubs: Albany, Baltimore, Bridgeport, Des Moines, Indianapolis, New Orleans, Oklahoma City, Reading, Rock Island, Shreveport, Springfield (Mass.), Tampa, and others. Some owners plan to rent their fields in the fall and winter for football, skating, and other sports and attractions.**

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N.B.C. NETWORK

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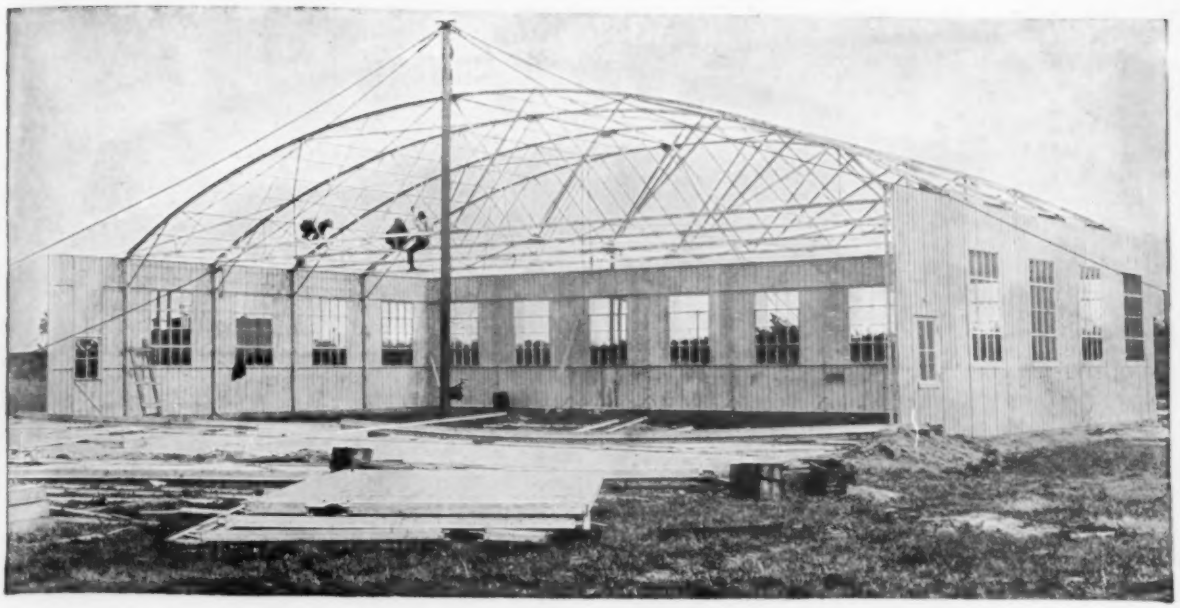
GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES



ERECTION VIEW OF IDECO HANGAR AT MUNICIPAL AIRPORT, MARION, OHIO, SHOWING GALVANIZED ROOF TRUSSES AND PANEL WALL SECTIONS

## Hangars of Section Panel Construction

Hangars with built-in panel sections, with sheeting, doors and sashes, fitted and flashed in place, are features of Ideco hangars, made by the International Derrick & Equipment Co., Columbus, Ohio. This sectional panel construction makes alterations or additions easy; if desired, the entire structure can be dismantled with full salvage and moved to another location—impossible with many types of steel or masonry structures. All members are permanently marked, corresponding with erection prints.

Unit construction makes the erection of a hangar for a single sport plane or for a fleet of transport ships a simple matter of bolting the panels together, raising the roof trusses, and applying the roof. The patented Ideco Lockjoint sheeting with weather-tight, invisible joint, makes an attractive appearance. Wind, snow, rain or dust does not penetrate through the joint, which locks the sheeting together into a rigid unit and fastens it to the frame without puncturing the sheets. Full double-weathered flashing is furnished at all points of contact, and the doors and sash are factory fitted and flashed in place.

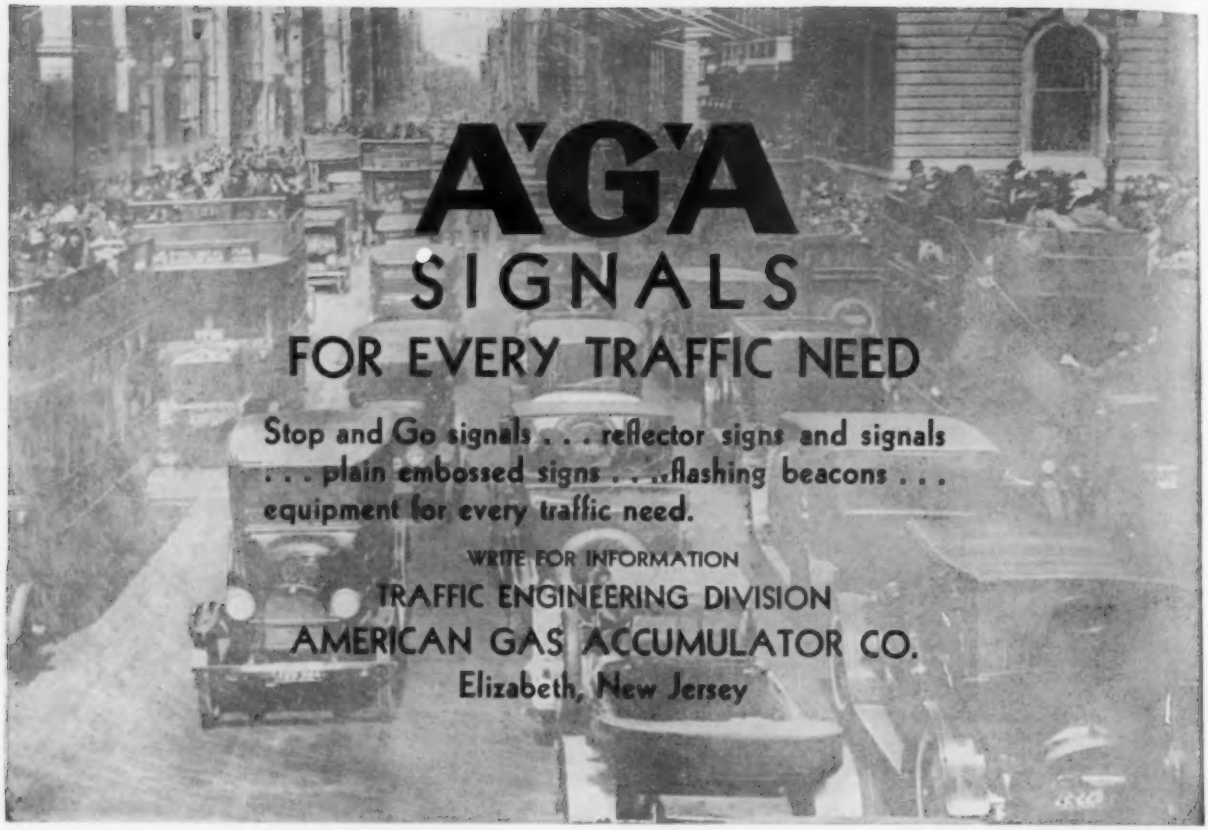
These hangars are permanent in construction, with complete protection provided against rust and corrosion. The combination of sturdy hot dip galvanized steel frames, sash and hardware and the Lockjoint sheeting made of Armco ingot iron eliminates constant painting.

By means of an ingenious patented method of insulation, Ideco hangars are made warm and comfortable, retaining all the advantages and flexible features of a sectional building. The insulating value is equal to 13 inches of brick or 20 inches of concrete, while the cost is less than that of either, according to the manufacturer.

These hangars are roomy, with ample ventilation and light, and in practically any arrangement of sash that is desired. There are no interfering columns, and open spans are available in widths of 40 feet to 120 feet in 10-foot increments. The length can be any multiple of 10

THE COMPLETED HANGAR, WHICH CAN EASILY BE ENLARGED AS NEEDED

Note how the doors rest inside the first panel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FOR EVERY TRAFFIC NEED
Stop and Go signals . . . reflector signs and signals . . . plain embossed signs . . . flashing beacons . . . equipment for every traffic need.
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AMERICAN GAS ACCUMULATOR CO.
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MARBELITE IS FAVORED

Lake Forest, one of Chicago's most exclusive suburbs, selected Marbelite Lighting Standards because their beauty of sculptured design and natural granite color would harmonize perfectly with their beautiful surroundings.

PAUL K. FLEMING
Vice-President and General Manager

AMERICAN CONCRETE MARBELITE CO.
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THE Toledo Torch

—the ONLY safety light with the low-cost, constant-flare Economy Burner.

Insist on the Genuine Toledo Torch. If your dealer can't supply you, write us.

Stormproof
Theftproof
Economical
Unbreakable
Self-righting

TPS The Toledo Pressed Steel Co.
TOLEDO OHIO
Save with Steel
Manufacturers of The Toledo Horse—the ideal highway barricade

feet. Standard heights are from 10 to 24 feet in 2-foot increments. The inside nesting type of doors slide back inside the hangar and nest tightly against the first panel of the hangar wall, conserving space, permitting the use of the entire door opening, and avoiding the blocking of windows or interference with the location of work-benches and equipment along the side of the hangar. The hangar doors are mounted on Timken roller-bearing wheels, the entire weight rolling on T-rail floor tracks with the top guides on roller bearings. Glazed or unglazed doors are available, the glazed doors providing unusual glass area.

## Automatic Control of Sterilization for Polluted Water

An entirely new principle in the automatic control of chlorination according to the amount of chlorine required to properly sterilize any degree of pollution has been announced by Wallace and Tiernan Co., Inc., Newark, N. J. The orthotolidin test, generally accepted as the criterion of correct chlorinator operation, positively controls chlorine flow in the new apparatus which has been developed by this company. The tests are automatically made at 10-minute intervals and the "residual chlorine" of the treated water is recorded on a chart.

Any fluctuations in flow or chlorine demand are reflected in varied "residuals" and are immediately compensated for by the automatic controller. Recorded "residual chlorine" curves show no appreciable lag between chlorine demand and the automatic adjustment of chlorine flow.

As a forward stride in the art of chlorination, this is a most outstanding event. As a safeguard against sudden and unheralded pollution, its value to water-works operators cannot be overestimated. This apparatus is available as a full automatic "residual chlorine" controlled automatic chlorinator, or the residual recording unit may be secured separately and used in conjunction with existing chlorinator equipment.

## Lovett Receives Western Appointment for Link-Belt

The Link-Belt Co., 910 South Michigan Avenue, Chicago, Ill., has announced the appointment of Frank W. Lovett as engineer in charge of sewage disposal equipment in the western territory. Mr. Lovett is located at the company plant office, 300 West Pershing Road, Chicago, and his services are available to municipal and industrial sewage disposal plant engineers and managers. He has been with the Link-Belt Co. for thirteen years, eight years of which have been in the designing of machinery for sewage treatment plants.

## A Crack-Filling Machine

A machine designed to fill cracks in roads with heated materials and follow immediately with sand or chips that will adhere to the hot mixtures and fill the crevice full, has been placed on the market by the Burch Corporation, Crestline, Ohio. The manufacturer claims that the unpleasant and wasteful methods employed in filling cracks are overcome with this machine, as the operator merely pushes the machine to the heater and fills up one tank with hot tar or asphalt and the other with chips and then starts his operation. It makes no difference what the size of the crack may be, nor how crooked it may be, he is prepared to place the right amount of bituminous material or stone in the proper place, and with the chips following the heated tar immediately and in the right amount, completing in a few moments a job in a crack reaching across the road. The chips are dropped a few inches behind the bituminous material, and the amount of either tar or chips is regulated by turning the handle slightly to either side; thus the operator has complete control of the flow of the material at all times.

BURCH CRACK-FILLING MACHINE

The Burch crack filler is built with a frame consisting of two pieces of ¾-inch pipe properly shaped to form a pair of handles. To the lower side of the frame is electrically welded a bow-shaped standard on which the rear of the machine rests. Two wheels 14 inches high are placed on an axle attached to the front end of the handles which form a driving mechanism for the feed in the stone compartment. A loose handle, or grip, is attached to the rear of the main handle or pipes, and to this grip is attached a rod. By turning the grip slightly sidewise on the right handle, the valve in the tar container is opened. On the left handle the clutch controls the feed from the stone compartment.

The tar is fed from a spout below the control valve in a thin stream that will easily flow into the narrowest crack. This spout and valve can be heated sufficiently to keep the material flowing thinly, by a blow torch attached back of the tank, forcing the flame through a flue cast in the base of the hopper, down to the valve, preventing the cooling of the material or its congealing around the valve if the machine is allowed to stand for a short time.

Between the two handles on a crossmember there is a short lever controlling the fluted feed roller, which may be disengaged if for any reason it is desired to stop the flow of stone, pouring tar only, or when the machine is being wheeled to the place of beginning operations.

The position of the two material compartments is such that the operator has a full view of the crack some distance ahead of the machine, and it is easy to so move the machine that the most crooked crack can be followed without difficulty.

The tanks each have a capacity of 7 gallons, and the machine weighs only 135 pounds. It is painted bright red, with wheels and trimming in black.

THE NEW W & T AUTOMATIC RESIDUAL CHLORINE RECORDER AND CONTROLLER (AT LEFT), ARRANGED TO OPERATE A SOLUTION TYPE CHLORINATOR

# "ANOROC"

*Prevents Corona ---*

*Eliminates Ozone*

**on rubber insulated high tension cables**

Voltage stress in air, either within or about a rubber insulated high voltage cable is likely to cause corona, the formation of ozone and damage to the insulation similar to that shown in the illustration.

Instead of trying to overcome the ozone hazard with metallic shields, protective coverings or so called ozone proof or ozone resisting insulation, we approached the problem from another angle and designed a new type of rubber insulation called "ANOROC" (corona from another angle) which prevents the formation of corona and ozone.

"ANOROC" rubber insulation positively prevents the formation of corona and ozone within or about a cable at normal operating voltage. It retains all of the qualities which identify a high grade rubber compound.

Further information and details of tests are contained in a recent Simplex publication entitled "Corona Prevention and Ozone Elimination." May we send a copy to you?

*Patent applied for.*

## SIMPLEX WIRE & CABLE Co

MANUFACTURERS

201 DEVONSHIRE ST., BOSTON

BRANCH SALES OFFICES

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# HUNT PROCESS MEETS *Every* CURING REQUIREMENT IN GREATER MEASURE

No matter what your curing requirements may be—

HUNT PROCESS fulfills them in greater measure than any other curing method.

Strengths of HUNT PROCESS cured concrete are equal to, or greater than, water cured concrete.

Absolute uniformity of curing—yard for yard—is assured when the concrete surface is covered by this processed asphaltic compound.

Labor costs are reduced to a minimum. Only one operation is necessary and the job is done. No disputes. No further attention is needed.

ALL types of concrete work benefit equally when this better curing method is specified.

An interesting booklet, which is yours for the asking, will prove the advantages of this better method on your job.

## McEVERLAST, INC.

111 West Seventh Street, Los Angeles, California

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1754 Graybar Bldg. NEW YORK, N. Y.
1234 Athletic Club Bldg. DALLAS, TEXAS
429 Russ Bldg. SAN FRANCISCO, CALIF.

OFFICES IN PRINCIPAL CITIES

## Willard H. Dow Now Heads Dow Chemical Co.

The Dow Chemical Co., Midland, Mich., has suffered the loss of its President, Dr. Herbert H. Dow, who died suddenly on October 15. Dr. Dow was generally recognized as one of the five foremost chemists in the country.

At a special meeting of the Board of Directors on October 21, Willard H. Dow was appointed President and General Manager of the company, to succeed Dr. Herbert H. Dow. For eight years Mr. Dow has been a member of the Board of Directors. For the past four years he has acted as Assistant General Manager, and he has been Assistant Treasurer for the last three years. His practical work in the plant has made him familiar with the manufacturing processes used in producing more than 150 chemical products.

The Dow Company has been a progressive pioneer for the prevention of dust on gravel roads and streets. Dowflake calcium chloride is a popular dust prevention product and has had wide use among leading highway officials and contractors as a concrete curing agent.

## A Complete Motor-driven Traffic Lining Machine

A new traffic lining machine which applies traffic paint mechanically and is motor-driven has been announced by McEverlast, Inc., 111 West Seventh Street, Los Angeles, Calif. The machine is mounted on an Indian Motocycle which furnishes the motive power and propels the equipment along the street or road at a speed of approximately 5 miles per hour. As the machine moves forward, the paint or lacquer is sprayed onto the pavement by compressed air. Two metal guides, which are adjustable for any width of line desired, insure sharp edges and uniformity in width. A guide wheel, attached to the front of the motorcycle, enables the operator to follow a true course.

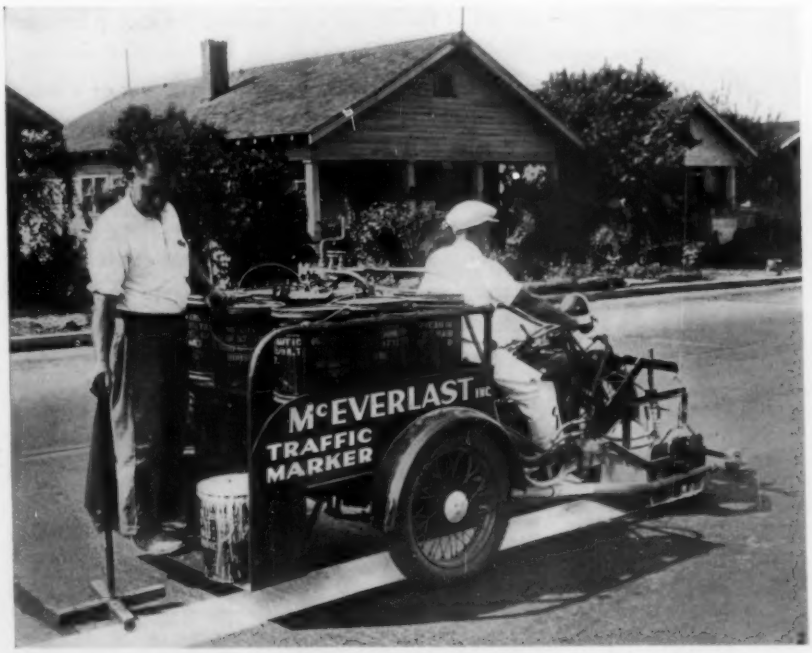
By means of this machine considerable savings in labor costs are made possible and a greater coverage is secured per gallon of paint than is possible by hand-painting methods. It is the policy of McEverlast, Inc., to loan the machine to cities, counties and states using McEverlast lacquer and thus enable them to benefit by the savings this machine has made possible.

## Sterling Opens New York City Office

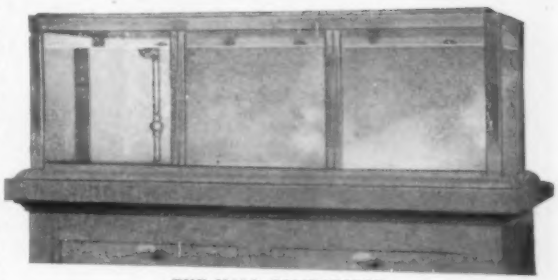
The Sterling Engine Co., Buffalo, N. Y., has opened an office at 900 Chrysler Building, New York, for the convenience of its many New York clients. William Edgar John is the manager of the new office. Two Sterling engines, the Petral and the Dolphin, are on display. The Viking, a 6-cylinder engine, which is to be exhibited at the Power Show, will be placed in the Chrysler Building office after the Show.

## The New Sacramento Airport

The city of Sacramento, Calif., has engaged the National Airport Engineering Co., Ltd., 775 East Washington Street, Los Angeles, Calif., to handle the engineering work on the new Sacramento airport, according to William E. Arthur, President, National Airport Engineering Co.




THE McEVERLAST POWER-DRIVEN STREET-MARKING MACHINE, SHOWING THE MANNER OF PROTECTING THE LINE UNTIL READY FOR TRAFFIC



THE HALL COMPARITOR

## Comparitor for Filtration Plants

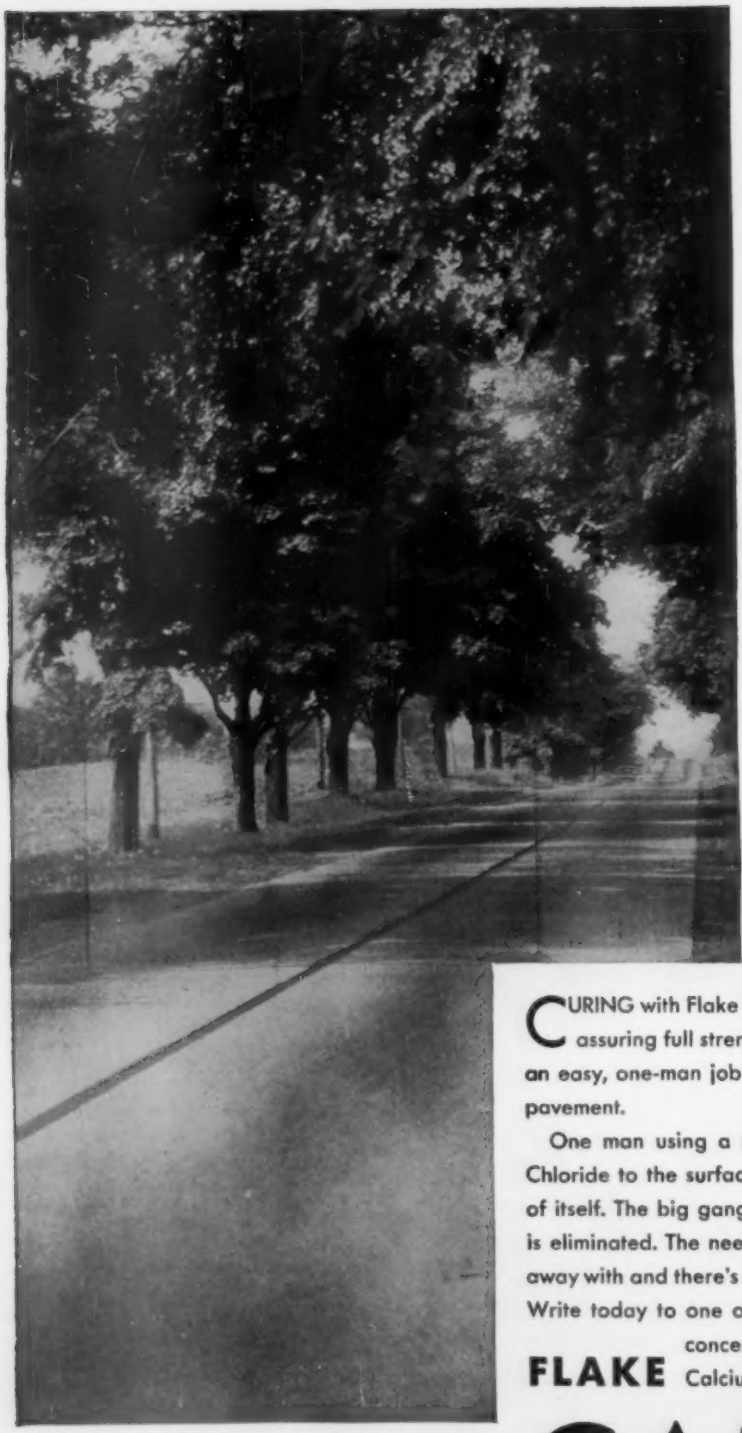
A new instrument to provide a quick and easy check on sedimentation, coagulation and filtration in municipal water plants has been announced by the Norwood Engineering Co., Florence, Mass. This instrument, known as the Hall Comparitor, is named after its inventor, A. J. Hall, Water-Works Superintendent at Appleton, Wis.

The Hall Comparitor consists of a plate-glass tank mounted on an oak cabinet. The tank is divided into three sections, each with a capacity of one cubic foot of water. In the right-hand section, raw water after chemical treatment but prior to sedimentation is shown. Thus, not only the quality of the raw water may be judged, but also the nature of the floc and the sufficiency of alum or chemical. The middle section shows the sample of water after sedimentation has been completed, and reveals the amount of floc carried over to the filters. The left section in the illustration shows the water after filtration and its condition as it leaves the plant.

Influent and effluent lines keep the samples constantly renewed. The light from 100-watt bulbs reflected by white vitralite glass effects complete illumination. The necessary piping and lighting arrangements are concealed by the cabinet, which has removable panels on the front and one side.

The light, the white background and the large size of the water samples cause the reaction to be shown with greatly magnified effect. Color differences are amplified. Number, size and composition of floc are easily determined. At a glance the observer can see variation in raw, coagulated, settled and filtered water. Irregularities are easily apparent and may be quickly rectified. It is believed that the installation of a Hall Comparitor in the control room of a filter plant will greatly simplify the task of keeping a check on the operation of the various units.

In municipal plants, the Comparitor also serves to demonstrate to the public the necessity as well as the difficulties of water purification. The public is given a graphic, easily understandable demonstration of the changes brought about by coagulation, sedimentation and filtration. Such visual demonstrations should go far toward lessening opposition to adequate rates and appropriations necessary for plant maintenance and the proper development of municipal water-works by "selling" the value of purification.



Calcium Chloride curing is approved by the United States Bureau of Public Roads. Ask for booklet 142

# One man

# with a spreader

**. . . replaces the big gang and the tons of material required by old-time curing methods! . .**

CURING with Flake Calcium Chloride means a great deal more than assuring full strength concrete through proper hydration. It makes an easy, one-man job of the actual work needed for curing concrete pavement.

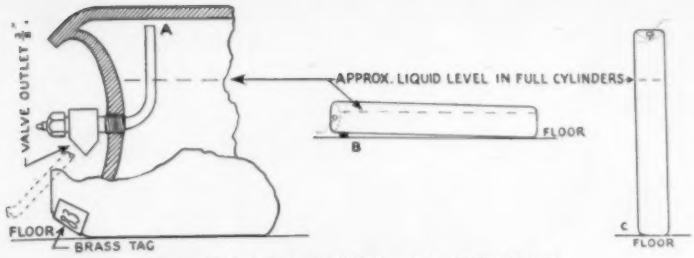
One man using a spreader applies the right amount of Calcium Chloride to the surface and the rest of the curing process takes care of itself. The big gang needed for ponding and covering operations is eliminated. The need for sprinkling and constant inspection is done away with and there's no need for a big clean-up after the job is done. Write today to one of the member companies listed for full details concerning up-to-the-minute concrete curing with **FLAKE** Calcium Chloride.

CALCIUM CHLORIDE PUBLICITY COMMITTEE

THE DOW CHEMICAL COMPANY, Midland, Mich.
SOLVAY SALES CORPORATION, 61 Broadway, N. Y.
THE COLUMBIA PRODUCTS CO., Barberton, Ohio

# CALCIUM CHLORIDE

**CURES CONCRETE**




POSITIONS OF CYLINDERS TO WITHDRAW AMMONIA AS A GAS

## The Handling of Anhydrous Ammonia as a Gas

With the prospects of a rapidly increasing use of ammonia in water-works plants, some knowledge of the way to handle ammonia cylinders is advantageous. The National Ammonia Co., Inc., Frankford P. O., Philadelphia, Pa., a subsidiary of E. I. du Pont de Nemours & Co., Inc., has issued a bulletin on the handling of ammonia gas, from which the following is excerpted.

Ammonia is shipped in three sizes of cylinders and each is approximately two-thirds full of liquid anhydrous ammonia. The cylinders are steel tubes manufactured and maintained under the regulations of the Bureau of Explosives of the United States Government. The large cylinder holds 150 pounds of ammonia, weighs 385 pounds gross, has an outside diameter of 12 inches, and a over-all length of 7 feet. The standard cylinder holds 100 pounds of ammonia, weighs 275 pounds gross, has an outside diameter of 10 inches, and an over-all length of 7 feet. The small cylinder holds 50 pounds of ammonia, weighs 150 pounds gross, is 10 inches in diameter and 46 inches long over-all.

The usual precautions observed in the handling of all compressed gas cylinders are the only ones necessary when working with ammonia. In other words, direct contact with steam pipes, flues, etc., and undue nearness to flame should be avoided, and the cylinders should be stored in dry places.

The liquid anhydrous ammonia in the cylinders is under pressure which, while not excessive, is sufficiently high at atmospheric temperatures to maintain the ammonia in the cylinder as a liquid. For example, at a temperature of 40 degrees F. the pressure in the cylinder is 58.6 pounds per square inch. At 80 degrees F. the pressure is 138.3 pounds per square inch. Since the ammonia in the cylinder is under pressure, no apparatus is required to discharge it as a gas.

The discharge of gas from the cylinder is assured when the cylinder is placed in such a position that the liquid level in the ammonia cylinder does not cover the open end of the dipper pipe "A" in the illustration. This position is simple and sure, as is apparent from the illustration showing the cross-section of a cylinder. A brass tag bearing the name of the manufacturer and a serial number is on every "National" cylinder, always on the flange at the valve end, and is always in the same position relative to the dipper pipe, that is, the brass tag is always diametrically opposite the end of the dipper pipe inside the cylinder. Thus, to withdraw ammonia as a gas and not as a liquid, the cylinder, when lying flat, should always have the brass tag nearest the floor. In this position, as may be seen by the illustration, the open end of the dipper pipe "A" will be above the liquid's surface in the cylinder at all times. As a positive check on this position, the valve outlet will be pointing downward, toward the floor. In case the floor is not level, it is suggested that the valve end of the cylinder be elevated about 3 inches, as shown in the illustration "B."

The cylinder may be stood on end, as shown in "C," and then the dipper pipe will never be submerged in the liquid content of the cylinder.

It should be especially noted that withdrawing gaseous ammonia from a cylinder at a rate faster than 1½ pounds per hour, will usually result in a refrigerating effect which, by lowering the pressure in the cylinder, will retard or suspend the flow of gas. When it is necessary to withdraw more than 1½ pounds of ammonia per hour, it is advisable to withdraw the ammonia as a liquid, especially if the process is one which requires a uniform rate of ammonia supply. The liquid ammonia may then be passed into a simple form of vaporizer where it is converted into gaseous form before proceeding to the apparatus in which the gaseous ammonia is to be employed. In the horizontal position, as shown at "B," liquid ammonia is withdrawn by keeping the dipper pipe "A" submerged in the liquid. The dipper pipe is submerged when the brass tag is farthest from the floor, that is, when the valve outlet is upward away from the floor. Instead of slightly elevating the valve end of the cylinder, as shown at "B," the butt end should be slightly raised.

## Permanent, Economical Traffic Lane Markers

The traffic problem confronting all cities today makes it essential that traffic be directed and controlled as automatically as possible, and this can best be done by permanent street markings easily understood by the public.

Emco traffic lane markers, made by the Edwards Manufacturing Co., Cincinnati, Ohio, solve this problem by effectually designating pedestrian lanes, stop lines at street intersections, spelling the word "Stop" in front of the line and marking traffic lanes for right and left travel. They may also be used to indicate bus stops, fire-plug restrictions, safety zones, parking lines, swing of street cars on curves, and danger lines for railroad passenger platforms.

Each marker consists of a 3¾-inch diameter marker plate of non-corrosive metal, a serrated washer and a steel pin. On asphalt, bitulithic, macadam or tar-bound streets the pins may be simply driven through the marker and washer into place with a heavy hammer, not tapped, but driven steadily with strong blows. It is, however, recommended to first drive a hole into the street smaller than the bell-shaped part of the pin, using a tool with a hardened point.

Markers, washers and pins are shipped unassembled. If the street is hard enough and does not shatter, the marker, with the washer under it, is laid over the hole in the street and driven into place. If the street is too soft or shatters, the marker should be assembled before applying. This is easily done by boring a hole in a piece of wood and laying the marker, with the washer under it, over the hole and driving the pin through so that the three parts are forced tightly together. The assembled marker may then be placed with the pin in the hole, and the marker driven down so that the outer edges are flush with the street.

On concrete streets holes should be drilled and filled with asphalt or cement, and the assembled markers pushed into place. On new concrete the assembled marker may be simply pushed into place while the concrete is still soft. On brick or granite streets, the space between the bricks or granite blocks should be first dug out and refilled with cement or a mixture of asphalt and sand, and the assembled markers driven in. On wood blocks the pin may be driven directly into the wood.

Spacing is a matter of judgment, 16 inches on centers being the most effective when the lines run across the street. When lines run with the street, the markers may be spaced much farther apart.

Spelling of words, such as "Stop" or "Slow" can be done with the regular 3¾-inch markers, but a 2¾-inch size is furnished for this purpose, if desired.

EMCO TRAFFIC LANE MARKER

# PROTECTS AGAINST WEATHER AND TRAFFIC

## A BRICK SURFACE PAYS FOR ITSELF IN A SHORT TIME

**Expensive traffic slabs should be protected. Otherwise mounting maintenance costs become oppressive as the cracks and imperfections caused by weather grow under the hammering of traffic.**

**Brick protects the costly pavement base. Water is sealed out. Temperature changes are minimized. Progressive breakage is prevented. The hard, vitrified brick resist abrasion and cushion traffic impact. Thus increased life of the pavement and lowered maintenance costs make a brick surface a profitable investment.**

*Announcements*

*THE NATIONAL PAVING BRICK MANUFACTURERS ASSOCIATION*
*1245 National Press Building*
*Washington, D. C.*
*will be an EXHIBITOR at the 1931 Road Show A.R.B.A. St. Louis January 12-16*

*Twenty-fifth Annual Meeting of the NATIONAL PAVING BRICK MANUFACTURERS ASSOCIATION will be held at WILLIAM PENN HOTEL PITTSBURGH, PA.*
*Brick Paving Technical Sessions Feb. 5-6, 1931*

VITRIFIED

# BRICK PAVEMENTS

*FACE THE FUTURE - PAVE WITH BRICK*

# NOW OFFERS PROTECTION *against* LOSS OF ALARMS FROM BROKEN OR GROUNDED FIRE ALARM CIRCUITS

## QUICK FACTS
*for the*
Technical Man
*on the*
1931 PEERLESS
FIRE ALARM BOX

1. Permits full alarm to be received from any one box, despite the following circuit troubles:
   (a) Open circuit
   (b) Grounded circuit
   (c) Box short-circuited
   (d) Entire circuit shunted out
   (e) Circuit open and grounded
   (f) Circuit open and box short-circuited
   (g) Circuit open and entire circuit shunted out
2. Permits full alarms to be received from all boxes except those between "troubles"—under the following complicated conditions:
   (a) Open circuit in two or more places
   (b) Circuit grounded in two or more places
   (c) Circuit open at one place and grounded at another
3. Not disabled by defective non-interference magnet
4. Operates at abnormally low line current
5. Standard Peerless non-interference and succession
6. Rugged and convenient terminal block
7. Break-wheel interchangeable with previous Peerless boxes
8. Extended succession
9. Standard quick-action door outer shell
10. Accomplishes everything a 1929 model Peerless box will do

FIRE Alarm Systems naturally provide the most reliable means for sending in fire alarms that is available today; chiefly because they have been designed for this purpose only, and are as nearly 100 per cent failure-proof as design, materials and workmanship can make them.

Tracing the development of the municipal fire alarm box from its infancy to the present day, we find several outstanding steps, each of which contributed greatly toward the protection of life and property:

(1) From hand-driven to weight-driven clock-work movements
(2) From weight-driven to spring-driven clock-work movements
(3) Non-interfering pull-handle
(4) Non-interfering movement
(5) Slow succession movement
(6) Quick succession movement

Despite all of these important improvements in the box, Fire Chiefs and Superintendents of Fire Alarm have for years looked forward to the time when there would be further developments that would reach out beyond the box to eliminate the hazards of lost alarms from broken or grounded circuits. Such conditions, resulting from street accidents, heavy winds and sleet storms always have been a source of worry to those in charge of fire alarm systems.

Now, in its *1931 Model PEERLESS Fire Alarm Box*, The Gamewell Company is offering the next major improvement in fire alarm boxes, which brings to fire alarm men, the realization of this long felt need—*protection against loss of alarms from broken or grounded circuits.*

Several other desirable improvements are also to be found in this new model, which one of our sales engineers will be glad to demonstrate to you without any obligation. Write to our nearest office or to the factory for complete details.

DENVER, CHICAGO, SAN FRANCISCO, DETROIT, PITTSBURGH

# NEWTON, MASSACHUSETTS

# AUXILIARY or STANDBY POWER—instantly ready, very economical and lastingly dependable if you choose good DIESEL ENGINES

*"We put our 400 b.hp. McIntosh & Seymour Diesel engine on and off the line with water wheels sometimes two and three times daily—a condition which we think more severe than long, steady runs.*

*"This engine is always ready to go and is a pleasure to operate. We are very well satisfied, and the fine workmanship on this engine enables us to praise it without misrepresenting."*

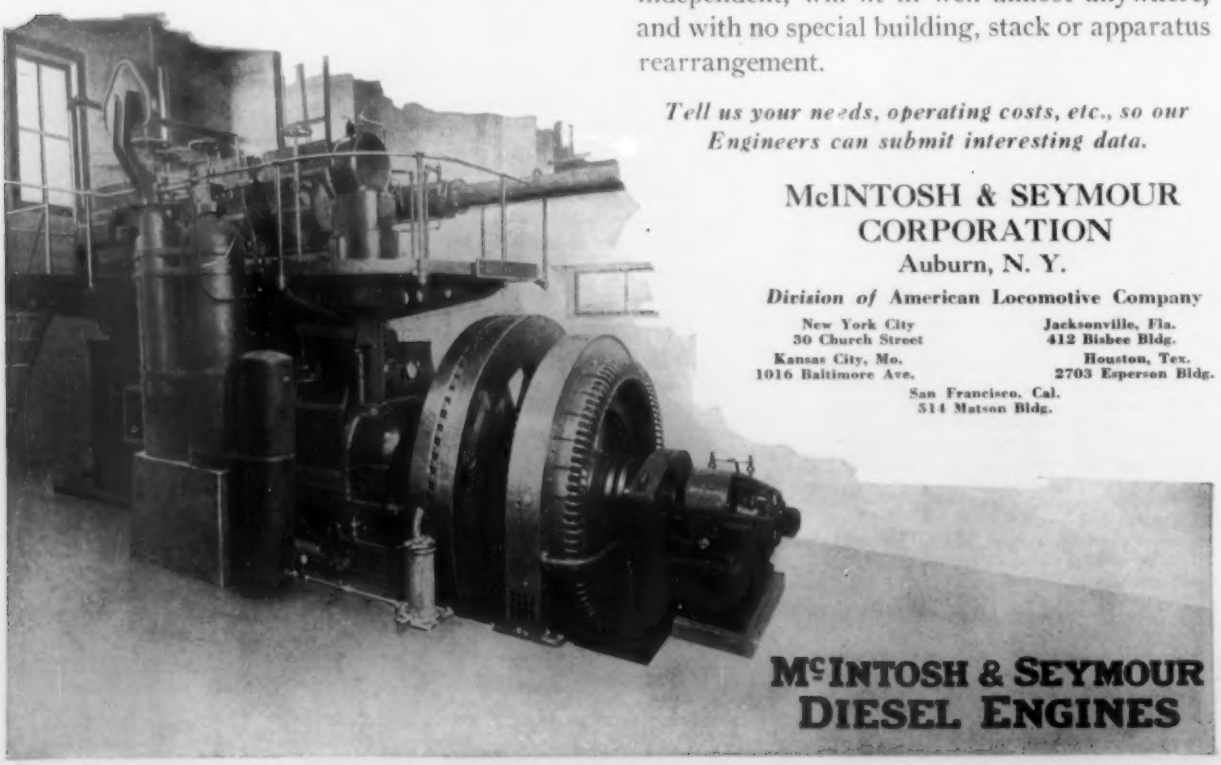
*—F. C. Hubbell, Supt., Water, Light & Power Plant, Lanesboro, Minn.*

THIS unit, shown below, has done its work so well that now it carries the whole load during the 8 to 15 hard hours of the day and the two water wheels with their 250-kw. generators, are used only during the light load periods. The Diesel engine is handled by the same man that handles the waterwheels, and produces about 12 kw.-hr. per gallon of fuel. Operating cost is about ½-cent per kw.-hr.

Many a plant owner who installed a Diesel engine to "help out," has quickly learned that it was the most economical part of his equipment. A McIntosh & Seymour Auxiliary or Standby Engine is therefore usually operated longer and harder than originally anticipated, and becomes a more profitable investment than for mere emergency use.

Whether you have steam, hydro-electric or Diesel main units, a Diesel auxiliary engine is the logical solution for more power, and being independent, will fit in well almost anywhere, and with no special building, stack or apparatus rearrangement.

*Tell us your needs, operating costs, etc., so our Engineers can submit interesting data.*




McINTOSH & SEYMOUR CORPORATION
Auburn, N. Y.
*Division of* American Locomotive Company

New York City, 30 Church Street
Jacksonville, Fla., 412 Bisbee Bldg.
Kansas City, Mo., 1016 Baltimore Ave.
Houston, Tex., 2703 Esperson Bldg.
San Francisco, Cal., 514 Matson Bldg.

# "INSTALL a VALVE at ONCE!"

WHEN the above instructions were issued in the old day's as regards an old water main of large size, it meant no mere child's play.

Water had to be cut off . . . city districts had to be endangered . . . health and fire had to be risked . . . possible damage to the pipe when cutting-in had to be faced, while the installation often suffered because of the rush conditions.

But the perfection of the Smith Valve-Inserting Machine has changed all this.

With its use; the highest water pressure need not be cut down for a moment. Insertions; even in very large sizes, can be perfectly made with care and dispatch—all a part of a day's work for a water department.

## S M I T H

### Valve-Inserting Machines

THE A. P. SMITH MFG. CO.
East Orange, N. J.

Tapping Machines
Tapping Sleeves & Valves
Valve Inserting Machines
Valves and Hydrants
Removable Plugs
Pipe-Cutting Machines
Corporation Tapping Machines
Corporation Brass Goods
Federal Water Meters

At Top: Smith Valve Inserting Machine with Sliding Valve Indicated at E.

Beneath: Cutting Mechanism of Smith Valve Inserting Machine.

#1: Pipe Cutter Attached to Pipe.

#2: Sleeve and Cutting Mechanism with Lower Bottom Section.

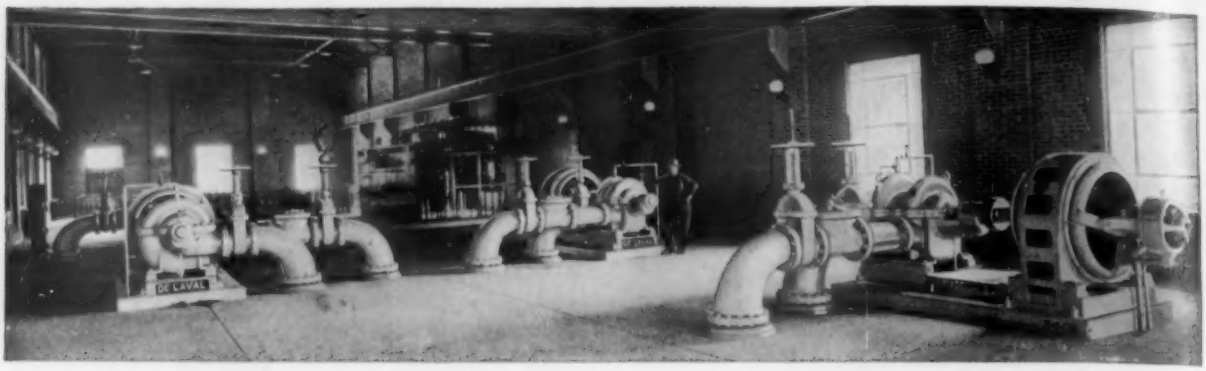
#3: Upper Section in Place, Enclosing Sleeve and Cutting Mechanism.

#4: Cutting Mechanism and Cut-out Section of Pipe Lifted into Dome of Machine with Sliding Valve E (see top illustration) Closed.

#5: Cutting Mechanism and Cut-out Pipe Section Being Removed from Casing.

#6: 20-inch Valve Being Inserted into Casing.

At Bottom: 20-inch Valve Insertion Completed.




## *De Laval Pumps Provide Low Cost Water Supply for Hagerstown, Maryland*

HAVING outgrown its original mountain water supply, the City of Hagerstown, Maryland, has installed a modern pumping and purification plant of 10,000,000 gallons daily capacity, to take the water from the Potomac River. The main high pressure pump room, which is here shown, contains three motor-driven De Laval two-stage pumps having a capacity of 3,500 gallons per minute each against 400-foot static head. The low service pumps lifting water from the river, are also of De Laval manufacture. The average operating cost for a year, including power, labor, chemicals and all other expenses, has been $39.97 per million gallons pumped.

**De Laval Steam Turbine Co.,**
*Trenton, New Jersey*

4032

# S-T-A-N-F-O-R-D-
# STANFORD!!

## Another victory for Stanford University

## No-not on the football field-but *under* the "Quad"

**The score? 25,000 feet of irrigation pipe restored to full-capacity service. A long, strong push and no fumbles. Why?—Because Stanford used THE NATIONAL METHOD.**

**What is this "NATIONAL METHOD?" It's the method of cleaning water mains that guarantees to restore them to at least 95 per cent of the carrying capacity of new pipe, without injury to the pipe, and at an expense very small, indeed, in comparison with the cost of new pipe.**

**Quoting from an article describing NATIONAL'S job at Stanford which appeared in a recent issue of Western Construction News:**

"The Stanford project involved a 12-inch cast-iron irrigation supply line from Searsville Lake to the University 'Quad,' a distance of 25,000 feet. This pipe was asphalt-dipped and laid with lead joints in 1892; it had never before been cleaned. . . . Cleaning increased the effective diameter of the pipe from 9.3 to 12 inches.

"About two years ago irrigation demands for the Stanford campus exceeded the normal capacity of the line, and, together with natural clogging, required installation of a 6-inch Byron Jackson booster pump. Since its cleaning, the pipe has delivered more water without the booster pump than it did when that expedient was used on the dirty mains.

"A varied assortment of vegetable growths, mud and scale was removed by the machine and flushed through the lower opening to a nearby creek-bed, leaving the interior of the pipe in fine condition."

THE NATIONAL METHOD

**Write today for a booklet giving full details of this method of water main cleaning—and its results!**

**The NATIONAL WATER MAIN CLEANING CO.**

HUDSON TERMINAL BLDG. NEW YORK, N. Y.

LOWER THE COST OF STREET WORK
WITH STORM SEWERS OF . . .

# ARMCO *Corrugated Iron* PIPE

*Under this street in Elyria, Ohio, a storm sewer of Armco Corrugated Iron was installed in 1907. In 1921—14 years later—when the pavement was replaced, the Armco Corrugated Pipe was inspected, found in good condition, and left in to serve through the future years. It is in service today.*

## *Their 24 year* SERVICE RECORD *stands alone!*

STREET officials, engineers and contractors from coast to coast have found that storm sewers of Armco Corrugated Iron Pipe help them save money . . . by postponing the day of costly sewer replacements and street repairs. Witness Elyria, Ohio, where Armco Corrugated Pipe served without interruption for 14 years, outliving the pavement . . . and was left in for more years of service when the street was repaved! Such facts of performance, being common with Armco, are absolutely convincing that this champion product is the one to use. Officials, engineers and contractors know they can depend on the storm sewer whose quarter-century record of service to date is unequalled by any other product of its type on the market today.

But Armco Corrugated Iron Pipe, they know also, is more than a durable, low-cost-per-year product. Being light, easy to haul and to install, and requiring less excavation, Armco Storm Sewers save money at the very start.

Moreover, Armco Corrugated Pipe is backed by the largest group of drainage specialists in existence. Hundreds of Armco engineers in the field bring the results of their studies, experience and investigations of storm sewers to "Headquarters" library. This library of facts is for your use, and contains data that may aid in lowering the cost of your storm sewer work. Without obligating yourself in any way, mail the coupon. Address the Association or the member nearest you.

ARMCO CULVERT MANUFACTURERS ASSOCIATION, *Middletown, Ohio*

*Armco culverts and drains are manufactured from the Armco Ingot Iron of The American Rolling Mill Company and always bear its brand.*

Gentlemen: Please send data on storm sewers of Armco Corrugated Iron Pipe.
I am ☐ an Official ☐ Engineer ☐ Contractor
I am especially interested in.....
Name .....
Address .....

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AC12

# ENGINEERS *knew it was right*

## *2,000,000 feet of Erosion-Resistant*

## ARMCO *Paved Invert* PIPE

## *now in use . . and the demand grows*

*Under highway and street alike, wherever erosion stalks, Armco Paved Invert Pipe serves successfully. The scene, with its projecting Paved Invert Pipe, shows a bend in the road between Elk Park and Boone, Watauga County, N. C.*

FOUR years ago Armco Paved Invert Pipe was introduced. It was presented to the drainage engineering world as a forward step in the fight against erosion, enemy of all drainage structures in direct contact with hydraulic traffic.

"Give Armco Corrugated Iron Pipe that one quality which all drain pipe lacks—the ability to 'stand up' against the steady attacks of sand, silt, stones and boulders," said prominent authorities, "and the superiority of Armco Corrugated Pipe will again have been established over all comers." Armco research and "in the ground" tests resulted in adoption of a bituminous pavement for the invert of the pipe.

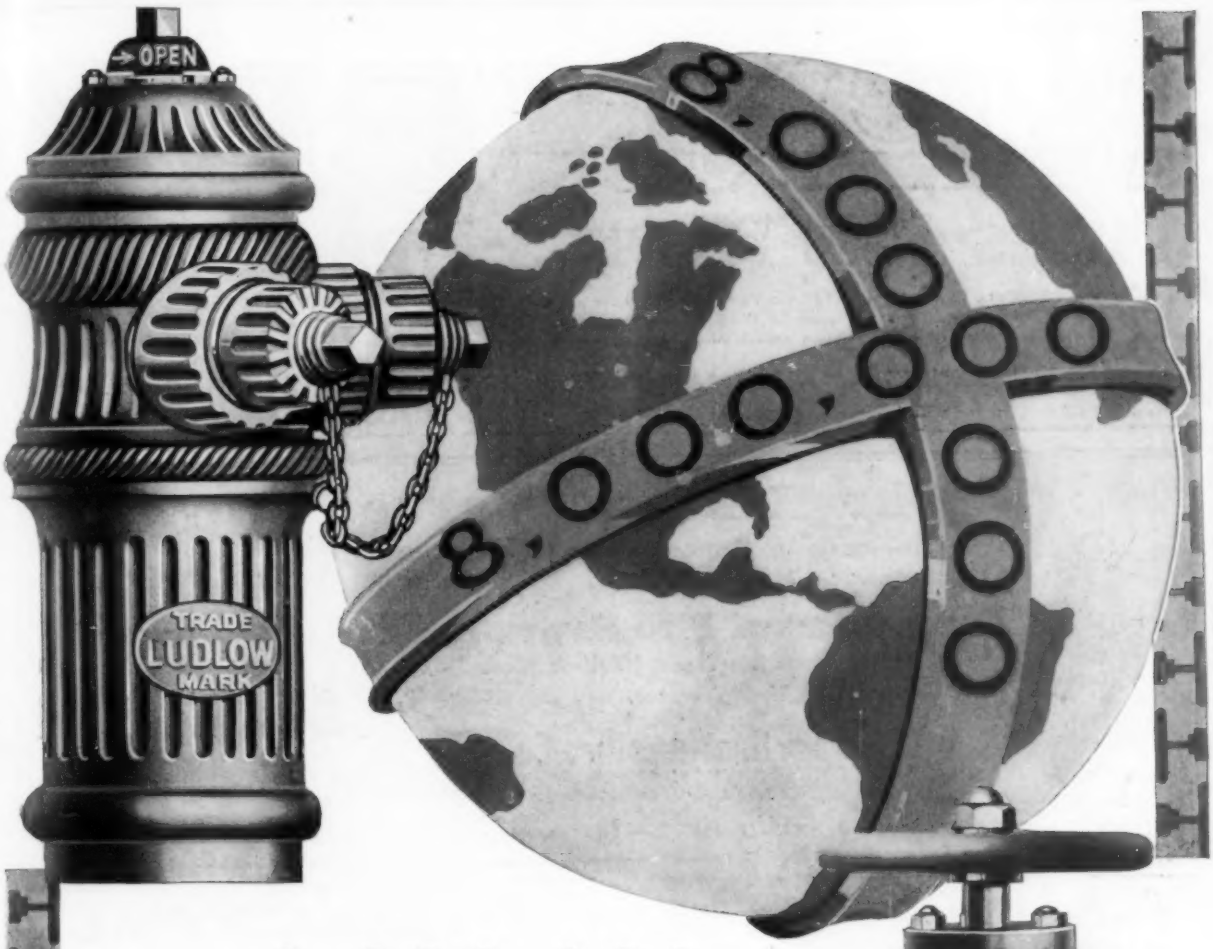
Engineers everywhere knew it was right. Their analyses said so. This paving, they said, will not only effectively protect the base metal against erosion; it will increase the life of the structure and decrease its cost per year.

*More than a protective coating — a layer of tough, resilient material which fortifies against wear where wear comes — in the invert.*

That was four years ago. Today, more than 2,000,000 feet of Armco Paved Invert Pipe are in use, attesting the confidence of foremost engineers and proving the true worth of the paved invert principle and application. *The bituminous pavement has weathered four years of service in "Nature's laboratory" under almost every condition of water flow, without perceptible show of wear!*

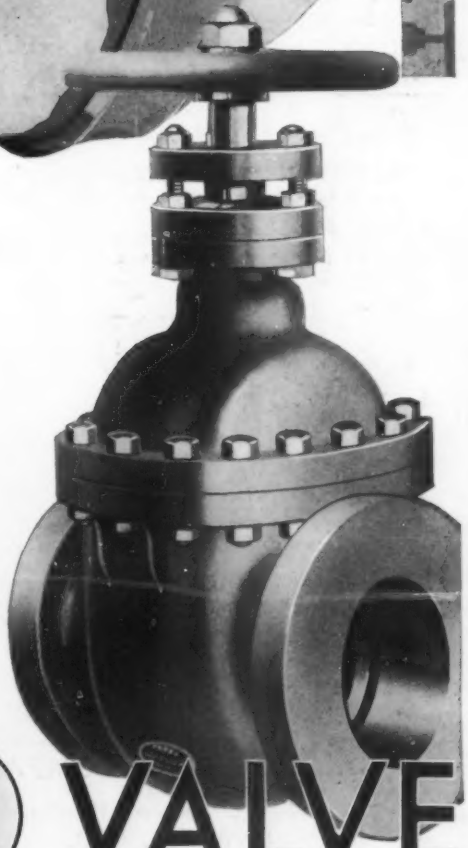
Its success has created a large and growing demand for Armco Paved Invert Pipe. Obtain factual field data on this cost-saving product by checking and mailing the coupon—over.

ARMCO CULVERT MANUFACTURERS ASSOCIATION, *Middletown, Ohio*




# 8,000,000 REASONS

Eight million Ludlow Valves and Hydrants giving good service throughout the world—eight million reasons for choosing Ludlow, noted for quality for over half a century.



The LUDLOW VALVE Manufacturing Co.

TRADE MARK

TROY N.Y.

4566

# KENNEDY

## VALVES-PIPE FITTINGS-FIRE HYDRANTS

Gate, Globe, Angle and Check Valves furnished for a wide range of sizes and pressures, and arranged for manual, gear, cylinder, or electric operation. Water Gates and Fire Hydrants built to American Water Works Association specifications. Underwriters' Approved Gate Valves and Post Indicators.

THE KENNEDY VALVE MANUFACTURING COMPANY, ELMIRA, N. Y.

New York City Chicago San Francisco Philadelphia Cleveland Atlanta El Paso Salt Lake City Los Angeles Seattle

**Your Kind of Valve**

Simple—easy to operate—long life—sturdy construction—A. W. W. A.

**Your Kind of Fire Hydrant too!**

The Revolving Head "Traffic Model"

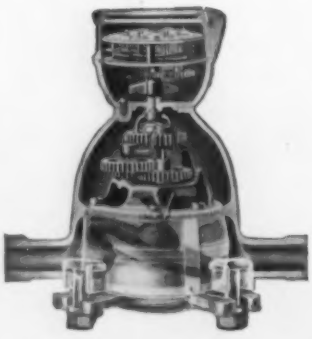
*Write for descriptive literature and prices*

**VOGT BROTHERS MFG. CO.**
INCORPORATED
LOUISVILLE · · KENTUCKY

**Built to a Standard!**

MANUFACTURERS OF "AER-O-MIX"—The new method, combining aeration and mixing

## "WATCH DOG" WATER METERS



*Inquiries Solicited*

GAMON METER COMPANY

*Main Office and Works*
NEWARK, N. J.

CHICAGO
360 N. Michigan Ave.

SEATTLE
1410 L. C. Smith Bldg.

## INTERNATIONAL
### WATER PURIFICATION PLANTS

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## DONALDSON IRON CO.

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*Manufacturers of*

## CAST IRON PIPE

FOR WATER AND GAS

*ALSO SPECIAL CASTINGS AND FLANGE WORK*


The offices of THE AMERICAN CITY, 470 Fourth Avenue, N. Y., are headquarters for information on equipment for municipal work. If you want catalogs, prices or names of manufacturers, let us help you.

# The OPERATING NUT of the MATHEWS MODERNIZED HYDRANT

Registered U. S. Patent Office

## Is Protected from Rain or Snow.. Sand or Dirt

The malleable iron shield nut protects the revolving nut against rain, snow, sleet, stream spray, sand and dirt. This protection is equally important in cold or warm climates because it ensures easy opening and closing without delays for thawing or cleaning. It also provides a tough, long wearing nut for wrench use—a nut not easily scarred or worn.

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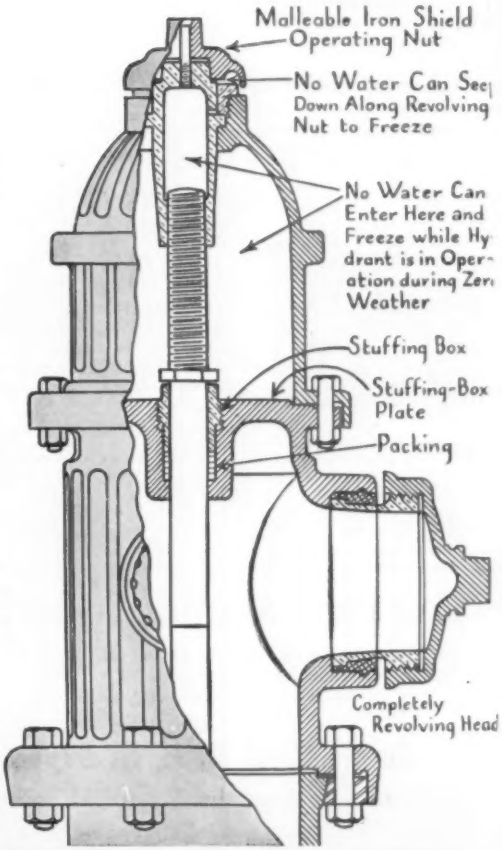


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**Lincoln Disc Filters**
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*Use "Lincoln" Disc Filters for highest efficiency in the mechanical removal of solids*

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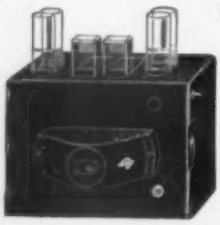

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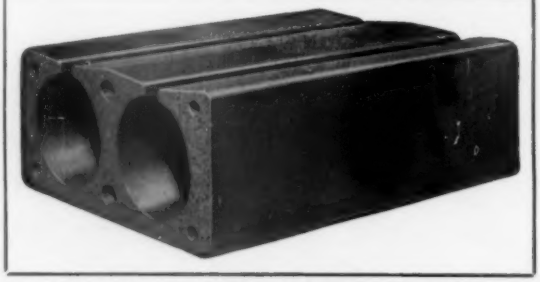

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That's all there is to laying McWane Precalked Joint Cast Iron Pipe. Just a calking tool—no leadpot. Sizes 1¼ through 12 inches.

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(also sold *without* the Precalked Joints)

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Automatic Pressure Control Valves
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ACCURATE—RELIABLE—SIMPLE—EASY TO CHECK AND ADJUST
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*Manufacturers of Meters and Controllers of Venturi Type; Gauges; Air and Vacuum Valves; Air Release Valves; and other Water-Works Devices*

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Oh, yes, long distance telephone or the telegraph will bring you a Clow-National special fitting within 24 to 48 hours. But, why wait that long? In the meantime, you may have lost hundreds of dollars . . . . many times the cost of keeping some of these fittings in stock.

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***Sizes 2- to 60-inch***

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

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Security Rods are made from second-growth hickory, with malleable iron couplings swedged or shrunk down very tightly on the curved places at end of sticks. Security couplings *cannot* come off.

Joint and unjoint easily and quickly—light weight—long runs easily made. No slack, but lend themselves to all practical bends. They cannot buckle or uncouple in the duct.

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May we send you a booklet on this subject?

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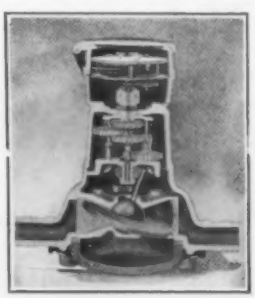

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**PHOENIX DISK METERS** are made by a Company that confines itself exclusively to the making of *Water Meters of Merit.* Phoenix Meters are specially noted for their rugged simplicity and for the absence of screws. *This means few-and-far-between repairs.*

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**a dependable self-caulking joint compound for cast iron bell and spigot pipe**

*Easy to Prepare* *Easy to Pour*

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—Beaconsfield

**Economy—**

2. Management of the affairs of a community—directly concerned with its maintenance or productiveness.

—as defined by Webster

**DARLING**
GATE VALVES

"THERE can be no ECONOMY where there is no efficiency."

All too often, purchases based on price are merely false economy. Though Darling Valves may cost a few cents more, their *prolonged efficiency* quickly puts them in the class of sound economy.

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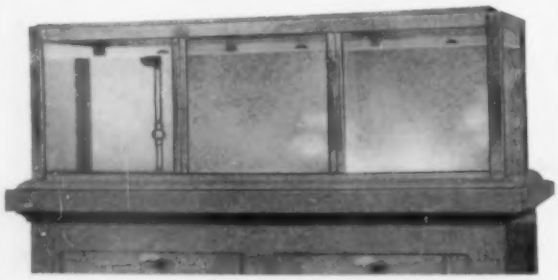

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Entirely new! Makes every stage of water purification process, easily, quickly and centrally visible. Makes plant operation easier and more efficient. Convincingly demonstrates to public the need of water purification. Send now for circular and full information.

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REINFORCED CONCRETE PIPE
*"It makes a better joint"*

Both the engineer who desires a sewer pipe having the least frictional resistance to flow and the contractor who desires the pipe that is easiest to lay properly endorse precast reinforced concrete sewer pipe made by the Newark Concrete Pipe Co.

***Write us for sketches showing type of joint furnished***

**NEWARK CONCRETE PIPE CO.**
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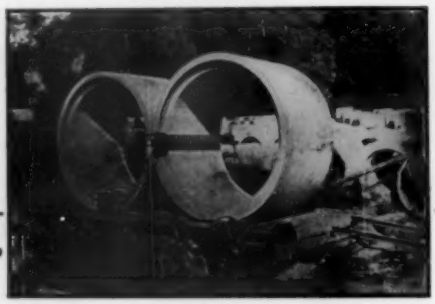

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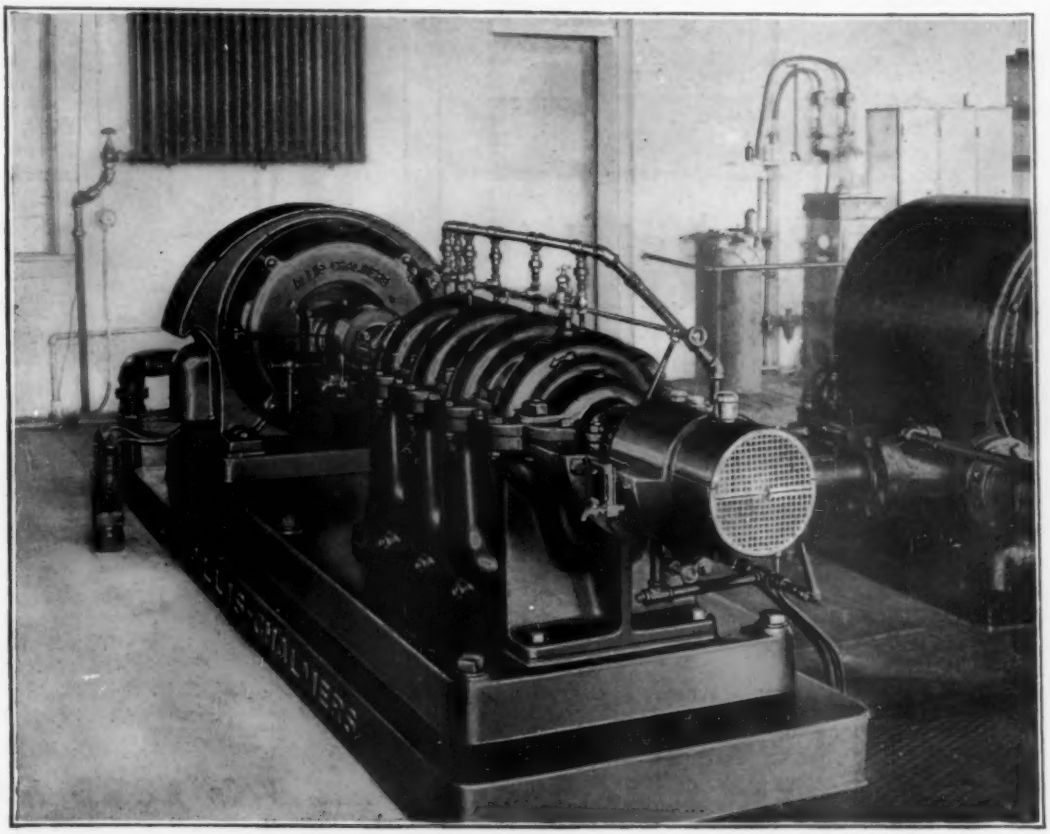


# PUMPS worth knowing

5"x4" Four Stage Type "M" Allis-Chalmers Centrifugal Pump with 200 h.p. Allis-Chalmers 1760 Rev. slip ring motor furnished in 1929 for City of Ironwood, Michigan. Rating 900 g.p.m., 630 ft. head. (Note absence of any vibration—picture taken with unit running.)

**The Allis-Chalmers latest type of multi-stage pumps (Type "M") are proving so remarkably satisfactory and efficient in service that cities can not afford to overlook their advantages even though their first cost may be slightly more than that of other pumps. The unit illustrated has saved the city where it is installed more than twice its original cost in the first year of pumping.**

**Bulletin 1642 describing the type "M" pump will be sent on request to city officials who wish to investigate the savings possible by installing this improved pump.**

# ALLIS-CHALMERS

**Allis-Chalmers Manufacturing Company, Milwaukee**

## Self-Propelling Ferret Turbine

Our self-propelling Ferrett Turbine is sold on a 30-day free trial.

It is a powerful, handy, well-built tool and is used to great advantage for cleaning dead ends, catch basins to manholes and all stoppages within several hundred feet from the manhole.

When ordering a Ferrett please send a male fire hose coupling with the order so that it can be threaded to fit your hose.

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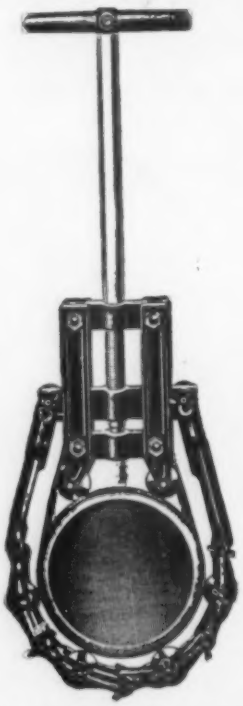

YOU, too, may save the cost of this pipe cutter on one job, just as many other contractors and water companies have done.

## The ELLIS PIPE CUTTER

with its six keen rotary cutting blades eats its way right through any pipe in double-quick time. Use No. 01 for all kinds of pipe 4 to 8 inches in diameter, or No. 1 for pipe 4 to 12 inches in diameter.

*Write for circular*

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Deep-Well Turbine
SELF-OILING—WEATHERPROOF

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Fool-proof — Trouble-proof
Compact
Sturdy
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Adaptable

Bulletin 36

**A. D. COOK, INC.**
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Roberts Filters

Over a billion gallons of water are now filtered daily by Roberts Filters on municipal water supply systems alone. Hundreds of industrial installations deliver almost an equal amount. Our list of recirculation plant installations includes the most modern outdoor and indoor swimming pools in the country. Write us for information.

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## The EDDY Valve

**The Eddy Valve has a number of distinctive features which it will pay you to study. For example: the gates are free to revolve on the trunnions, so as not always to seat in the same position.**

***Write us for further details***

**Also manufacturers of the well-known Eddy Hydrant**

**EDDY VALVE COMPANY**
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## WHY *The* NASH

### is the best Disc Meter at any Price

NASH meters are made, inside and out, of our own special mixture, non-corrosive bronze composition.

NASH discs are conical, much stronger and easier in operation than flat discs, and are extra slow-moving.

The NASH measuring chamber closes with a snap joint—no screws.

NASH intermediates are simpler, surer and stronger than any others. Open or closed as you wish.

We are specialists on the straight-reading register. The one on the NASH is the best to be found on any meter.

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NASH breakable flange washers are the most effective and economical of all frost protection features.

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To sum up: the NASH is accurate, long wearing and reliable. It represents a combination of the best materials, good design, expert workmanship, and experience; and has back of it our reputation of over sixty years spent in the manufacture and sale of high-grade meters.

Let us send you a sample meter, just to get acquainted.

**NATIONAL METER CO.**

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**A PROVEN PRODUCT**

**for**

**Jointing Bell and Spigot Water Mains**

**EASY MELTING** **RAPID POURING**
**NO CAULKING** **TIGHTER JOINTS**

Shipped in 10 lb. ingots—convenient and clean to handle—free from moisture.

Radial cracks DO NOT occur in MINERALEAD joints

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**of Pennsylvania**
***Established 1892***

**Mertztown** **Pennsylvania**

Manufacturers of G-K Sewer Joint Compound, the original bituminous joint for terra cotta pipe.

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ARE KEEN ABOUT LYNCHBURG SERVICE

An enormous capacity on all items of our manufacture insures PROMPT SERVICE. . . . Write, wire, or telephone your requirements and get the thrill of "LYNCHBURG SUPERIOR SERVICE."

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**In 12-foot lengths:** Bell and Spigot Water and Gas Pipe—in sizes 3 in. through 48 in.
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**deLavaud Centrifugal Pipe:** Through to 20 in. in 12-foot lengths, and from 4 in. through 12 in., in 18-foot lengths. Bell and Spigot and all Bell Fittings from 3 in. through 48 in.

**Plain End Fittings**
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***Standard and Extra Heavy Companion, Blind and Reducing Flanges, and Miscellaneous Castings***

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# Send Us Your Meter Troubles

We solve them in a manner and at a cost satisfactory to you and your patrons. All makes and sizes corrected, repaired, tested, by experts.

When meters do not function properly box them and ship to us by freight or express. We will do the rest and you will be pleased.

**HYDRAULIC EQUIPMENT CO.**
Formerly READING METER REPAIR CO.
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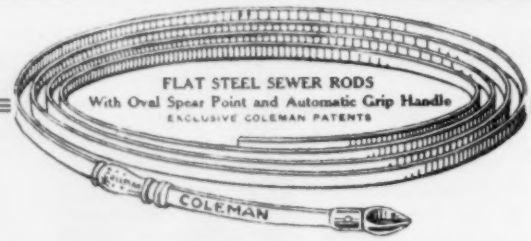


## Will Clean Any Sewer

**Coleman's Steel Sewer Rods will positively remove any and all stoppages from sewers or drain pipes.**

***Get it from your jobber or order direct from***

**ALLAN J. COLEMAN, 208 N. Wabash Ave., Chicago**

# "G"

**The new Rensselaer Catalog "G" is now ready for distribution. Officials desiring the latest information on RENSSELAER VALVES and COREY HYDRANTS are invited to fill in and mail the coupon below.**

RENSSELAER VALVE CO.,
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Send Catalog "G" to

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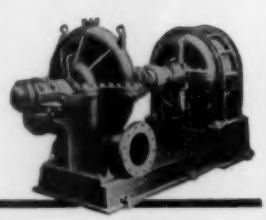
## CENTRIFUGAL PUMPS

FOR water supply, sewage disposal, fire service, circulating, boiler feeding, general service, etc. We build to meet any pumping conditions and for any power—belted, electric, steam or gasoline engine.

***Write for Bulletin 122***



MORRIS MACHINE WORKS
BALDWINSVILLE, N. Y.

# For durability and economy, LOUISVILLE lays *Cast Iron* water mains exclusively

Photo by Ewing Galloway, N. Y.

"THE first cast iron pipe in Louisville was laid in 1860," writes Mr. John Chambers, Superintendent of the Louisville Water Co. "This pipe is still in service. We have no mains that are not of cast iron. Our mains vary in size from four inches to seventy-two inches in diameter."

The splendid performance, low maintenance costs and great durability of cast iron pipe have proved the wisdom of using cast iron mains exclusively. In regard to large diameter pipe, Louisville finds cast iron particularly economical. Many other cities endorse Louisville's judgment. In fact, during the past year, more large diameter cast iron pipe was produced than ever before.

The reason for the durability of cast iron pipe is its effective resistance to rust and corrosion. Water and gas mains of ferrous metal (iron and steel) with the exception of cast iron, disintegrate from rust.

Cast iron pipe is the only ferrous metal pipe practicable for underground mains which rust will not destroy.

For complete information regarding the economy of specifying cast iron pipe for water, gas, sewers, culverts or industrial needs, write to Thomas F. Wolfe, Research Engineer, 309 Peoples Gas Building, Chicago, Illinois.

✣ ✣ ✣

Cast iron pipe bearing the "Q-check" trade mark is obtainable from the following leading pipe founders: Alabama Pipe Company, Anniston, Ala.; American Cast Iron Pipe Company, Birmingham, Ala.; James B. Clow & Sons, 219 N. Talman Avenue, Chicago, Ill.; Donaldson Iron Company, Emaus, Pa.; Glamorgan Pipe and Foundry Company, Lynchburg, Va.; Lynchburg Foundry Company, Lynchburg, Va.; National Cast Iron Pipe Company, Birmingham, Ala.; United States Pipe and Foundry Company, Burlington, N. J.; Warren Foundry and Pipe Company, 11 Broadway, New York.

*Engineers inspecting the installation of a large diameter cast iron main in Louisville, Kentucky.*

CAST Q IRON

*The "Q-check" symbol shown above has been adopted as the trade mark of The Cast Iron Pipe Research Association.*

# CAST IRON PIPE

Why not remember to mention THE AMERICAN CITY?

The name "Niagara" applies to the iron case Buffalo-Made Water Meter. The name "American" applies to the bronze case Buffalo-Made Water Meter. Both meters are precision instruments of the single piston, positive displacement type.

## Serving *American Tax Payers* Since 1892

SINCE 1892, Niagara and American Water Meters have been faithfully serving the American tax payer.

Behind the Buffalo Meter Company is an enviable reputatior for building precision instruments of great endurance.

Buffalo Meter Company was founded in 1892 by Mr. George Bassett, who has been in active charge of this ever growing business since that date. Mr. Bassett and his sons have had, as their constant aim, the building of a product whose record for sustained accuracy and genuine service could not be duplicated. How well they have succeeded in this ambition is manifest by the steady progress, until today Buffalo Meter Company is the largest manufacturer of strictly liquid meters in the world.

When you invest the tax payer's dollar in Niagara or American Water Meters, you are assured in advance of reliable water meter service for years to come. Send for the Niagara and American Water Meter Catalog. It is sent without obligation to any interested water works superintendent, or public works official.

BUFFALO METER COMPANY
2902 Main Street, Buffalo, N. Y.

Water Meters are Instruments of Economy

NIAGARA (IRON CASE) *and* AMERICAN (BRONZE CASE) Water Meters

# ANACONDA
## Deoxidized Copper Tubes
### *for flexible underground service lines*

These tubes, used with threadless fittings, are strong and highly resistant to corrosion. Their flexibility makes for ease of handling, economy of installation and compensates for settling of the soil. The ductility of Anaconda Deoxidized Copper Tubes practically eliminates the danger of damaged pipe due to freezing. Supplied in straight lengths and coils.

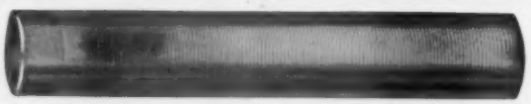
In situations calling for rigid lines, Anaconda 85* Red-Brass Pipe is offered as the best corrosion-resisting pipe commercially obtainable at moderate cost. Semi-annealed, seamless, fully guaranteed.

ANACONDA
from mine to consumer

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

*Trade-mark Reg. U. S. Pat. Off.

## MORE WATER—LESS DRAWDOWN



Test after test, in laboratory and in field, have proved conclusively the truth of our claim that the Johnson Screen will either give more water with the same drawdown or an equal quantity of water with less drawdown than any other screen. It saves its cost many times over in pumping economy.

Special specifications of Anaconda Red Brass makes the Johnson Screen corrosion-proof.

*We shall be pleased to send you our bulletins*

EDWARD E. JOHNSON, INC.
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*This 1,000,000 gallon PDM tank was completed in May, 1930 at West Allis, Wisconsin. It is 65 feet in diameter by 26 feet 1 inch, and the tank balcony is 147 feet 11 inches above ground level*

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Adequate water supply is a prime necessity for any town or city. PDM clean-cut, modern elevated steel tanks solve this vital question today for thousands of American municipalities.

Pumping into an elevated tank is more economical than "direct pumping" because the pump always works under a uniform load and at maximum capacity. Costs of power and supervision are reduced, as pumping is not required during the entire 24 hours—due to the reserve supply stored in the tank for peak load demands and for constant fire protection.

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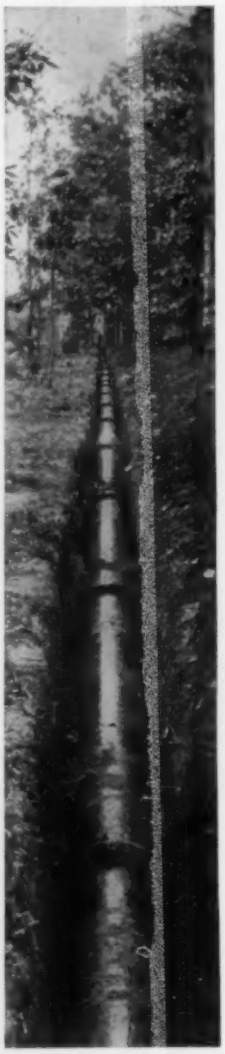
**Pittsburgh-Des Moines engineers are always ready to co-operate with municipal officials in recommending the correct tank or tower, standpipe or steel reservoir. Write today for our Water Works Catalog.**

**Pittsburgh-Des Moines Steel Company**

**3 Neville Island, Pittsburgh, Pa.** **905 Tuttle St., Des Moines, Iowa**

# *it's* Certainly *much* Cheaper



HERE'S powerful testimony to the economy of using Mono-Cast pipe, as rendered by a well-known northern public works contracting firm:

"The past season we used about 8,000 feet of Mono-Cast pipe. This was used on a contract for the U. S. Government, and although the original specifications called for Standard Class "B" Cast Iron Pipe, the Government engineers, after thorough investigation, permitted the use of Mono-Cast. The only size we used was 6-inch, and the saving in first cost amounted to 14.3c per foot. Of course, this pipe is much lighter than Standard, and there would naturally be a saving in handling costs. *The pipe was uniform in structure and of the entire shipment there was not a single length defective nor was any of it cracked or broken in handling.* We see no reason why this pipe should not give as good if not better service than Standard over a period of time and *it is certainly much cheaper in first cost.*"

*JUST OUT!*

*New issue of the famous "American Pipe Manual" containing valuable data for the use of pipe men everywhere. Write for your FREE copy!*

AMERICAN

CAST IRON PIPE CO.

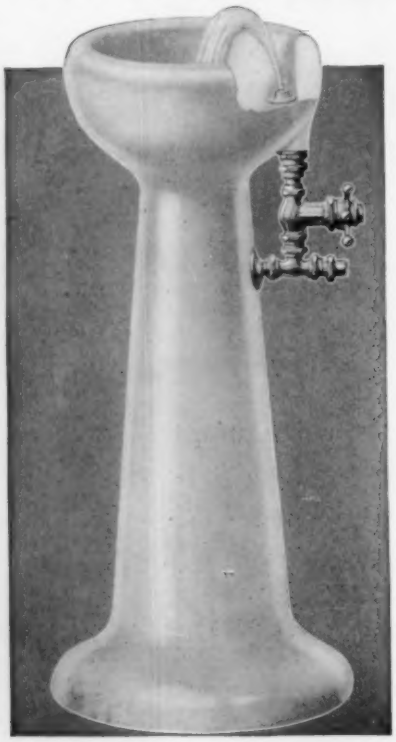
BIRMINGHAM, ALA.

*Branches:*
New York City, Chicago, Minneapolis, Cleveland, Kansas City, Dallas, Detroit, San Francisco, Los Angeles, Seattle.

Q ACIPCO PRODUCTS BEAR THE "Q-CHECK" MARK OF THE CAST IRON PIPE RESEARCH ASSOCIATION.



# R-S Fountains



## Fountains of Beauty

R-S Drinking Fountains are in keeping with the lines of present day architecture—pleasing, clean in design—they add much to public buildings, hotels, schools and other institutions.

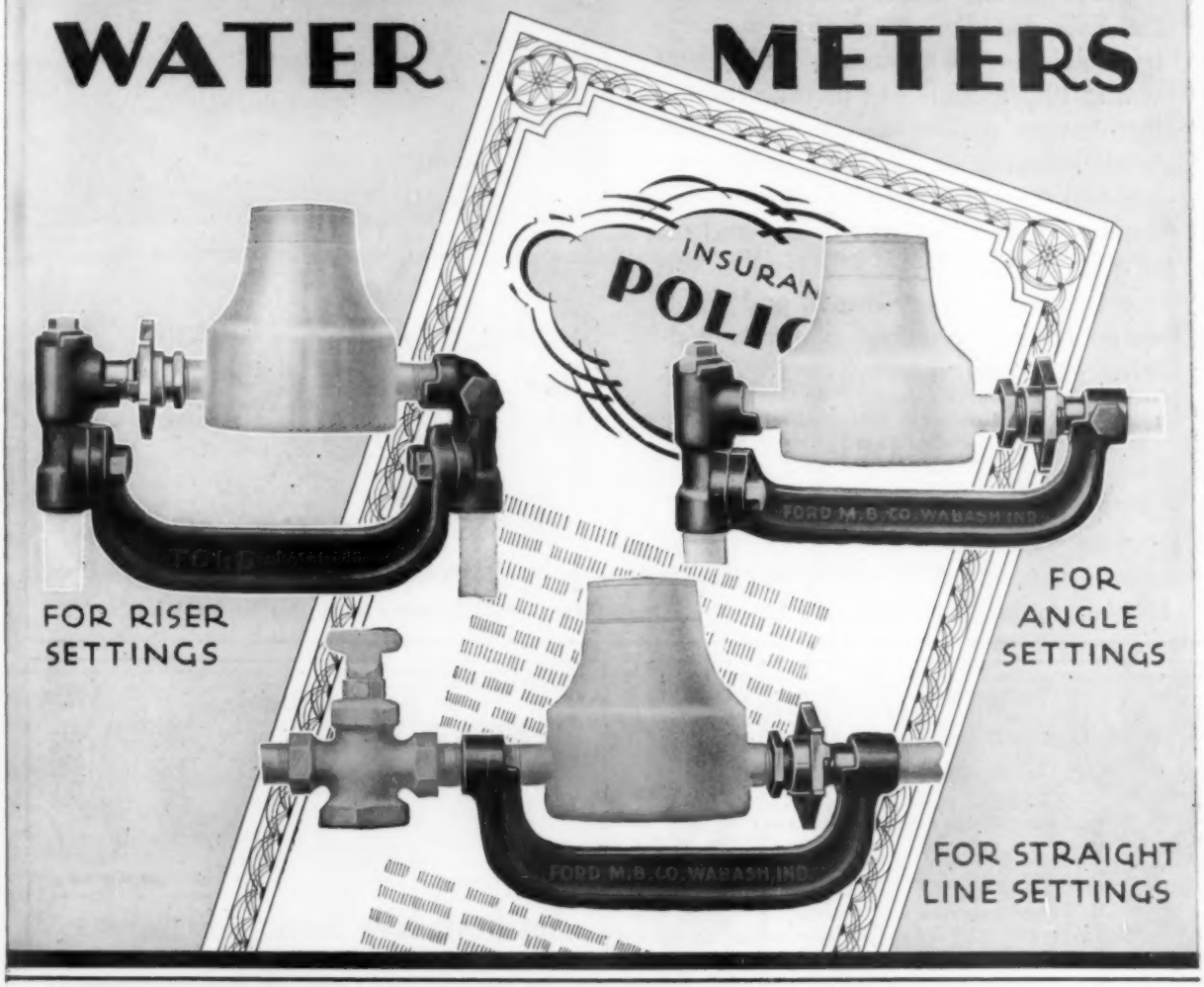
There are many types and styles of R-S Fountains now available in colors—but all have the R-S Vertico Slant feature. Let us give you full particulars. Write for catalog.

RUNDLE-SPENCE MFG. CO.
53 Fourth Street
MILWAUKEE, WISC.

RUNDLE-SPENCE

# A GOOD INSURANCE POLICY!

# The FORD YOKE FOR WATER METERS




**INSURES YOU . .**

1. *Easy Meter changes . . . . always.*
2. *Perfect and permanent alignment and spacing of service pipes.*
3. *Meter changes without disturbing pipes or possibly starting leaks.*

*Let us tell you more about it!*

## The FORD METER BOX COMPANY

WABASH ~ INDIANA

WATER METER SETTING AND TESTING EQUIPMENT

# WASECA, MINNESOTA, SPEAKS

"As you know, we have recently installed one of your 425-HP. Viking II engines direct connected to E. M. 250 Kva. 2300-volt generator for standby service. We thought possibly you would like a couple of pictures of the installation which we are enclosing. With gasoline at 10c. per gallon we are making what current we need for short periods at a cost for fuel and oil of a trifle over 2-½c. per Kwh. We like the engine very much, and think we could not have done better considering our conditions."

*The lowest priced, quick starting, high-duty emergency engine built*

**Multiple Units Can Operate in Parallel**

*Exhibiting at the Power Show, New York, December 1-6th*

Sterling High Duty Internal Combustion Engines

12 to 565 B. H. P. Gas or Gasoline

STERLING ENGINE COMPANY

1270 Niagara St., BUFFALO, N. Y. Dept. C11 900 Chrysler Bldg., NEW YORK, N. Y.

# Paradon CHLORINATORS

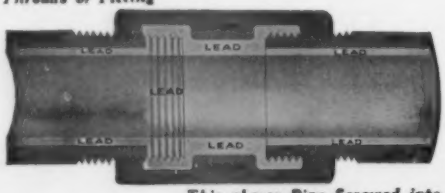
for City and Private Water and Sewage Systems, Industrial Plants and Swimming Pools.

Over 1,400 PARADON Chlorinators are in operation on every conceivable type of water supply, swimming pool and sewage plant.

*Send for Bulletin M-21*

PARADON MFG. CO.
Arlington New Jersey

*This shows Pipe just entering Lead Threads of Fitting*




*This shows Pipe Screwed into Lead Threads and Shoulder of Fittings*

## For Dependable Service Installations

*"Wakefield" Galvanized*

**Amalgamated Lead Lined Iron Pipe and Fittings**

Low Cost—Easily Installed—Permanent

*Inquiries respectfully solicited*

LEAD LINED IRON PIPE CO., Wakefield, Mass.

## Every Facility for Producing A DEPENDABLE FIRE PUMP

The Waterous is backed by an organization that has both the requisite equipment and experience to produce the most efficient and dependable fire pump. Since 1886 it has played a prominent part in safeguarding communities. Abroad as well as here it has earned its reputation for dependability.

*Shall we send you descriptive catalog?*

WATEROUS COMPANY

FIRE HYDRANTS—ROTARY PUMPS
WATER WORKS SUPPLIES—FIRE APPARATUS
SAINT PAUL, MINNESOTA
U.S.A.

## USE JOINTITE

**For Laying Sewer Pipe**

(Catalog No. 29)

**As the Ordinary Cement Joints Leak**

Every drop of ground water that gets into the sewer becomes sewage, and has to be pumped, tanked and filtered and the lines enlarged to take this infiltration.

**Jointite Can Save This Waste**

*Correspondence Solicited*

PACIFIC FLUSH-TANK CO.

4241 Ravenswood Ave. CHICAGO, ILL.

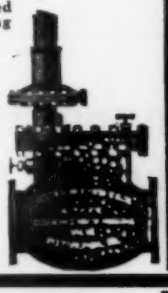
9 Park Place NEW YORK

Do you mention THE AMERICAN CITY? Please do.

# No Floats or Fixtures but Absolute Water Control

**GOLDEN-ANDERSON**

**Pat. Automatic Cushioned Water Pressure Regulating Valves**



1. Maintain a constant reduced pressure regardless of fluctuations on high pressure side.
2. Perfectly Cushioned by water and air. No metal-to-metal seats.
3. The best valve made for maintaining a constant low pressure where consumption is continuous.
4. Operates quickly or slowly as required—No attention necessary.
5. Positively no hammering or stitching. Sizes to 24 in.

**A constant water level can be automatically maintained in reservoirs, tanks and standpipes by the use of**

## GOLDEN-ANDERSON

**Automatic Cushioned Controlling Altitude Valves**

These valves are always cushioned in closing and opening. They are extensively used for automatically maintaining a uniform stage of water in reservoirs, tanks and standpipes. No valves inside. No floats or fixtures, inside or outside of tanks. No freezing troubles.

Three ways of closing these valves:

1st—Automatically, by Water.

2nd—By Electricity, if desired.

3rd—By Hand.

May also be arranged to automatically close when a break occurs in the mains. When necessary they may be so connected as to "work both ways" on a single line of pipe.

**GOLDEN-ANDERSON**

**Pat. Cushioned Water Relief Valves**

1. Automatically relieve excess pressure.
2. Prevent stress strain and bursting of mains.
3. Correct mechanical construction.
4. Perfect air and water cushioning.
5. No metal-to-metal seats. No hammering or shocks.
6. Angle and globe pattern. Sizes 3 to 24-inch.

**GOLDEN-ANDERSON**

**Pat. Automatic Cushioned Controlling Float Valves**

1. Automatically maintain uniform level in heaters, tanks, etc.
2. Air and water cushioned.
3. No metal-to-metal seats.
4. No waste of water.
5. No water hammer or shock.
6. Angle or Globe, patterns to 24-in.

**GOLDEN-ANDERSON**

**Pat. Automatic Cushioned Water Float Valves**

1. Automatically Maintain Uniform Water Levels in Tanks, Standpipes, etc.
2. Instantly Adjusted to Operate Quickly or Slowly.
3. Floats Swivel to any Angle—Most Satisfactory Float Valves known.
4. No Metal-to-Metal Seats—No Water Hammer or Shock.
5. Cushioned by Air and Water.

Sizes ½" to 24".

Golden-Anderson Valve Specialty Co., 1329 Fulton Bldg., Pittsburgh, Pa.

# COLE TANKS

**Designs will be submitted to *meet any special requirement for tower and tank*, whether on a building, or odd location, or requiring auxiliary units.**

**The 600,000-gallon elevated tank shown at the left serves the city of Raleigh, N. C.**

**Our tanks have been built in practically every part of this country. They embody the requirements of all insurance authorities, and are so simply constructed as to make maintenance cost practically nil.**

***We also specialize in standpipes, boilers, flumes, etc.***

## R. D. COLE MFG. CO.

*Established 1854*

NEWNAN GEORGIA

New York Office: 5 Beekman Street

# COLE TOWERS

During December we hope you will remember to mention THE AMERICAN CITY.

# It's a different pump

Any well equipped machine shop can build a conventional turbine pump. But to build a conventional pump that embodies good engineering practice and yet is **distinctly different**, is truly an achievement.

Since 1902 Pomona has built pumps and built them well. Several years ago Pomona brought forth the greatest improvement ever recorded in pumping history—the development of water lubrication to supplant faulty oil bearings below the surface. Now there are thousands of Pomona Turbine Pumps operating everywhere, **all water-lubricated.** Goodrich Cutless Bearings form the support for the rotation of the non-corrosive stainless steel shaft. No oil is used below the surface. Frictional losses are at a minimum. Other outstanding features include the semi-open impeller, capacity of which may be adjusted from the surface. The Pomona Unidrive head incorporates a built-in Westinghouse motor, the most efficient type of power application ever devised. Bulletins sent upon request.

**Distributors, Factory Representatives, and Service Facilities in all principal cities. Name of nearest one on request.**

POMONA PUMP CO.
Pomona Calif.

POMONA
WATER-LUBRICATED
TURBINE PUMPS

# FIRE HOSE SPECIALISTS

## —doing one thing and *doing it well*

**If you have had experience with our Wax and Para Gum Treated Fabric, Rubber Lined Fire Hose, we need no better testimonial than its record in your service.**

**If you have not used it, why not try it and be convinced?**

**FABRIC FIRE HOSE COMPANY**
9-15 Park Place
NEW YORK

FACTORY: SANDY HOOK, CONN.
Patentees and Sole Manufacturers since 1880
WAX AND PARA GUM TREATED COTTON RUBBER LINED FIRE HOSE

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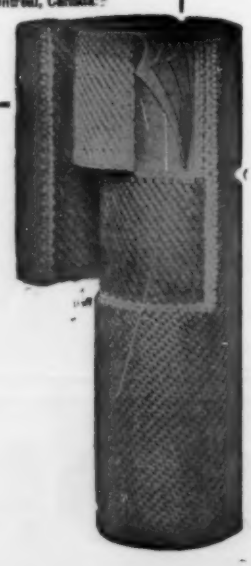
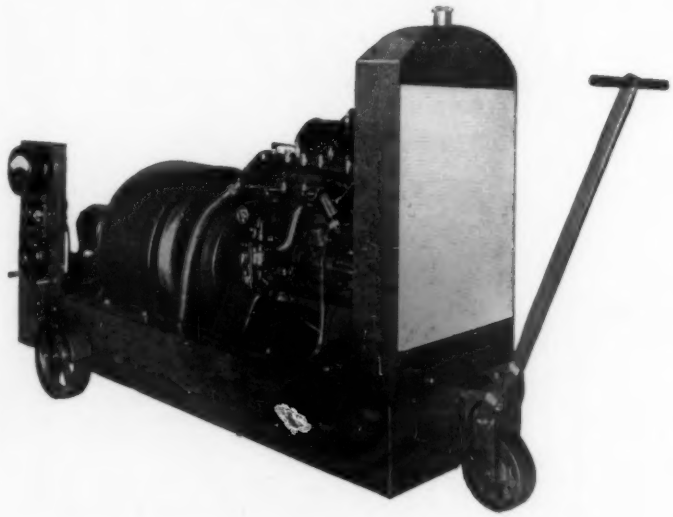


# Thawing Frozen Pipes with an ENGESSER has two advantages over other methods



1. It's speedier: Two men with an ENGESSER will thaw out a 300-foot ¾-inch pipe in from three to ten minutes.

2. It's less expensive: An ENGESSER generates its own power, so does not require a lineman to make connection to a high-voltage line.

Send for a set on 30 days' trial. Try it. See for yourself how it works. Mount it on any one-ton truck, and do the job with a single helper.

Winter is upon us! Act NOW!

ENGESSER ELECTRIC MFG. CO., INC.
WATERTOWN NEW YORK

250,000-GALLON TANK
BRADENTON, FLA.

# TANKS, TOWERS and MUNICIPAL CASTINGS

A 90-mile-an-hour Florida hurricane failed to injure this water tank by so much as a tie rod's getting out of alignment. . . . This is the type of construction that SCHOFIELD'S gives you.

SCHOFIELD'S HAS BEEN SUCCESSFULLY SERVING MUNICIPALITIES FOR 78 YEARS.

Besides water tanks, towers and standpipes, we manufacture sewer castings, anti-rattle manhole covers and rings, meter boxes, park benches, white-way lamp posts, boilers, engines and plate, sheet and structural work of all kinds.

*Send for Illustrated Catalog*

## J. S. SCHOFIELD'S SONS CO.

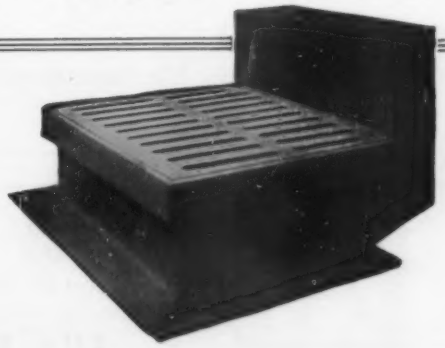
FOUNDED 1852

Tampa, Fla., Office
310 Krause Bldg.

MACON, GA.

Atlanta, Ga., Office
1503 Candler Bldg.

This SIDE CATCH BASIN handles water through both grates and hood opening. This is just one of at least a hundred patterns in stock at all times . . . all widely known for their durability and efficiency.



**PLAYGROUND...**

AMERICAN Playground Devices are giving constant enjoyment and happiness to children in every part of the country. Slides—swings—teter—toters—merry-go-rounds—ocean waves and a half-hundred other fun-making and health-building devices are all combining to build happier and healthier American youth.

**BEACH and POOL...**

ENTHUSIASTIC users everywhere voice hearty recommendations for American Water Sport equipment. The enviable reputation enjoyed by us is the result of having given beach and pool owners the best in water sport devices for more than a score of years.

**FLOOD LIGHTS...**

AMERICAN Flood Lights are giving satisfaction everywhere. American Flood Lights furnish intense and thorough illumination for football fields, playgrounds, pools, filling stations—in fact every place that needs a flood of daylight.

**AMERICAN**
**PLAYGROUND DEVICE CO.**
ANDERSON, INDIANA, U. S. A.

S. BEATRICE
WESTBROOK

**WHY did Jackson, Michigan, select this sign out of the 35 that were submitted by various companies?**

BECAUSE the average street sign has to stand some pretty hard knocks. Because after a thorough investigation, the Jackson officials decided that

**RUEDISALE**
WOOD CARVED RAISED LETTER STREET SIGNS

are at the top in quality, and near the bottom in price! Let us show you samples of our work, and quote you our prices. (Detroit has used RUEDISALE Signs for thirty years.)

**WILLIAM J. RUEDISALE CO.**
4130 Van Dyke Avenue
DETROIT MICHIGAN

**JOSLIN**
*Street Signs*

10 POINTS of SUPERIORITY:
1—Easily read
2—Weather proof
3—Unaffected by atmosphere
4—Do not chip, crack or break
5—Rigid construction and assembly
6—Du Pont Duco finish
7—Copper Bearing Galvannealed Steel
8—Galvanized Steel Parts
9—99.4% pure aluminum
10—10-Year guarantee
*Send for literature and prices*
A. D. Joslin Mfg. Co., Manistee Mich.

**EVERWEAR**
**Playground and Water Apparatus**

The recognized standard of safe and permanent equipment value for the playground and swimming place.

***Write for the new 1930 Catalog No. 22***

**The Everwear Mfg. Co.**
Desk 12
Springfield, Ohio

## *Do You Want Prices or Anything?*

Readers of THE AMERICAN CITY desiring to secure catalog or price lists on any sort of machinery equipment or supplies for municipal or county work are invited to state their wishes to the Catalog and Price List Department, The American City, 470 Fourth Ave., New York. One letter to us will secure you the information you desire free of all charge, and at a considerable saving of time and correspondence.

LAY

**Lay Split Hickory Fiber**

for street cleaning brooms is made by special-built machinery which insures a higher grade product. A trial will convince you. Write us for prices.

THE LAY MANUFACTURING COMPANY
DALLAS J. G. Carrier, *Manager* NORTH CAROLINA

# . . . For Maximum Drainage Economy *use*

(Above) Solving drainage problems — laying half round, flat bottom GOHI Culverts in streets of Alameda.

(To left) Installing 24" GOHI Corrugated Culvert on Dixie Highway near Falmouth, Ky., made necessary because of collapse of rigid type.

GENUINE OPEN HEARTH IRON GOHI PURE IRON - COPPER ALLOY TRADE MARK REG. U.S. PAT. OFF.

(Meets copper-bearing pure iron requirements in all accepted specifications for corrugated metal culverts.)

## Corrugated Culverts

THE ever-increasing cost of modern highways is forcing attention on construction economies.

Out of costly experiments with various types and kinds of culvert, has come the conviction that GOHI Corrugated Culverts make for economy in highway construction by lowering drainage costs.

Made of Genuine Open Hearth Iron — pure iron-copper alloy — these culverts give maximum resistance to the corrosive influence of soil, water and weather. Their reasonably low first cost; low-cost installation; flexibility that resists settling or shifting earth and vibration from traffic; demonstrated durability in countless installations;—these are factors that weigh heavily in lowering your drainage investment.

Whatever your requirements, get all the facts about GOHI Culverts. The more carefully you investigate and compare advantages and costs, the stronger will be your conviction that GOHI is *the* culvert for you to buy.

**Use GOHI Culverts for**

Reservoir Syphons and Outlets
Highways
Real Estate Developments
Golf Courses
Airports
Railway Roadbed Drainage
Storm Sewers
Drainage of reclamation areas
Temporary or permanent flumes.

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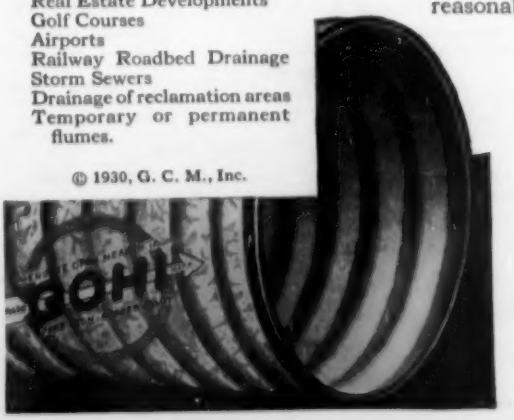


**GOHI CULVERT MANUFACTURERS, Inc., Newport, Ky.**

**Lincoln Steel and Forge Co.**
St. Louis, Mo.

**The Newport Culvert Co.**
Newport, Ky.

**The Pennsylvania Culvert Co.**
Philadelphia, Pa.

**Denver Steel & Iron Works Co.**
Denver, Colo.

**A. N. Eaton, Metal Products**
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**Tennison Brothers**
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**Central Culvert Co.**
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**Roanoke Sales Corp.**
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**St. Paul Corrugating Co.**
St. Paul, Minn.

**Tennison Brothers**
Oklahoma City, Okla.

When you write for that catalog, kindly mention THE AMERICAN CITY.

TOKHEIM

## 2 Features of the Tokheim CHRONOPLAN System of Traffic Control

—Moves traffic efficiently!

The control and movement of traffic is efficient only when the minimum amount of time is utilized in stopping and starting a group of cars. The CHRONOPLAN System obtains this objective in individually compensating blocks of unequal length and intersections subject to varying amounts of cross-traffic.

—Continuously!

With the time cycle set up to permit traffic to move at a certain safe speed per hour, the Tokheim CHRONOPLAN System moves traffic continuously. It naturally follows that the main artery under control, becomes a veritable "through" street, on which a group of cars, or groups of cars, seldom need stop.

—Ask for a copy of Bulletin No. 2000, an interesting discussion of efficient traffic control.

TOKHEIM OIL TANK & PUMP CO.
Fort Wayne, Indiana

CHRONOPLAN

## REPRESENTATIVES WANTED!!

Lyle Signs, Inc., for 17 years, makers of the famous

## LYLE Carved-In SIGNS

have a few choice territories now available for responsible men.

In addition to the LYLE Carved-In Street Signs (made by exclusive, patented machines) the Lyle Line also includes—

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| Parking Signs | Stop Signs |
| Traffic Paint | Semaphores (Manual) |
| Danger Signals | Oval Signs |
| Reflector Signs | Brackets |
| Warning Signs | Posts |
| School and Hospital Signs | Pavement Markers |
| Highway Signs | Embossed Signs and Markers |
| Vehicle Tail Light Reflectors | Special Wording Signs |

Complete details of the possibilities such an affiliation will afford you may be had by addressing

**LYLE SIGNS, INC.**
MINNEAPOLIS ⤷ MINNESOTA

## BRASS

the metal that is immune to climatic conditions, is used in our Street Signs, which are constructed along practical, scientific and engineering lines, making a permanent street sign with minimum installation costs.

*Write for catalog*

UNION IRON PRODUCTS CO.
Drawer H East Chicago, Ind.

## THE PEERLESS MOWER SHARPENER

THE Peerless Mower Sharpener is a wonderful but simple invention that sharpens all makes of power and hand lawnmowers, scientifically, quickly, perfectly; does the work as nothing else can. Grinds a perfect bevel and clearance—no more pulling and tearing of turf. Operated by 1-3-hp. motor—attach to your lamp socket. Skate Sharpener Attachment sharpens all makes of skates. Earns money all the year round. Will save its cost the first season. Write for Catalog and list of users.

The Fate-Root-Heath Co.
908 BELL STREET
PLYMOUTH, OHIO

Hundreds of Golf Clubs, large and small, now use the Peerless Mower Sharpener.

## WHERE AM I, MISTER?

How often is that question asked in YOUR city, not only by strangers in town, but by your own citizens living in other sections? And all because your streets are not properly marked!

Our latest development in street signs will allow you to erect them on every corner. Write for particulars.

A four-way porcelain enamel sign, in aluminum holder, ready to mount on 2-in. post, complete, in reasonable quantities..... 6.50

ROCHESTER STREET SIGNAL CO.
400 Ward Bldg. Rochester, N. Y.

## IDEAL POWER LAWN MOWER COMPANY

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*Branches:*

273 Boylston Street, Brookline, Mass.
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413 West Chicago, Ave., Chicago, Ill.

*Dealers in all principal cities*
*Canadian Distributors:*
Aikenhead Hdw., Ltd., 17 Temperance St., Toronto, Ont.

### BULLDOG GANG MOWERS

5 and 3-unit type

### IDEAL POWER MOWERS

Roller 22 and 30-inch. Wheel 20 and 25-inch

### IDEAL TRIPLEX MOWER

*Write for catalog*

# Fence Protection

## —a visible sign of municipal progress

Your townspeople and visitors may not be familiar with the progress you are making in city legislation and policies.

But they cannot fail to notice such important improvements as installations of modern fence protection.

Municipal buildings, parks and institutions enclosed with Cyclone Fence are a visible sign that city officials are keeping step with modern needs.

*All chain link fence is not Cyclone. This nameplate identifies the genuine Cyclone Fence*

Cyclone Fence is an all-copper-steel fence. Copper-steel chain link fabric erected on H-column copper-steel posts.

The full-weight chain link fabric is heavily coated with a smooth, dense covering of pure zinc applied by the "Galv-after" process. No chipped or cracked spots. No chance for rust to start.

Cyclone erection crews are ready at a minute's notice to install your fence. Cyclone takes complete responsibility. Wire, write or phone for information.

## Cyclone Fence

REG. U.S. PAT. OFF.

CYCLONE FENCE COMPANY, *General Offices*, Waukegan, Ill.

*Branch Offices in All Principal Cities*

Pacific Coast Division: STANDARD FENCE COMPANY, Oakland, Calif.

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SUBSIDIARY OF UNITED STATES STEEL CORPORATION

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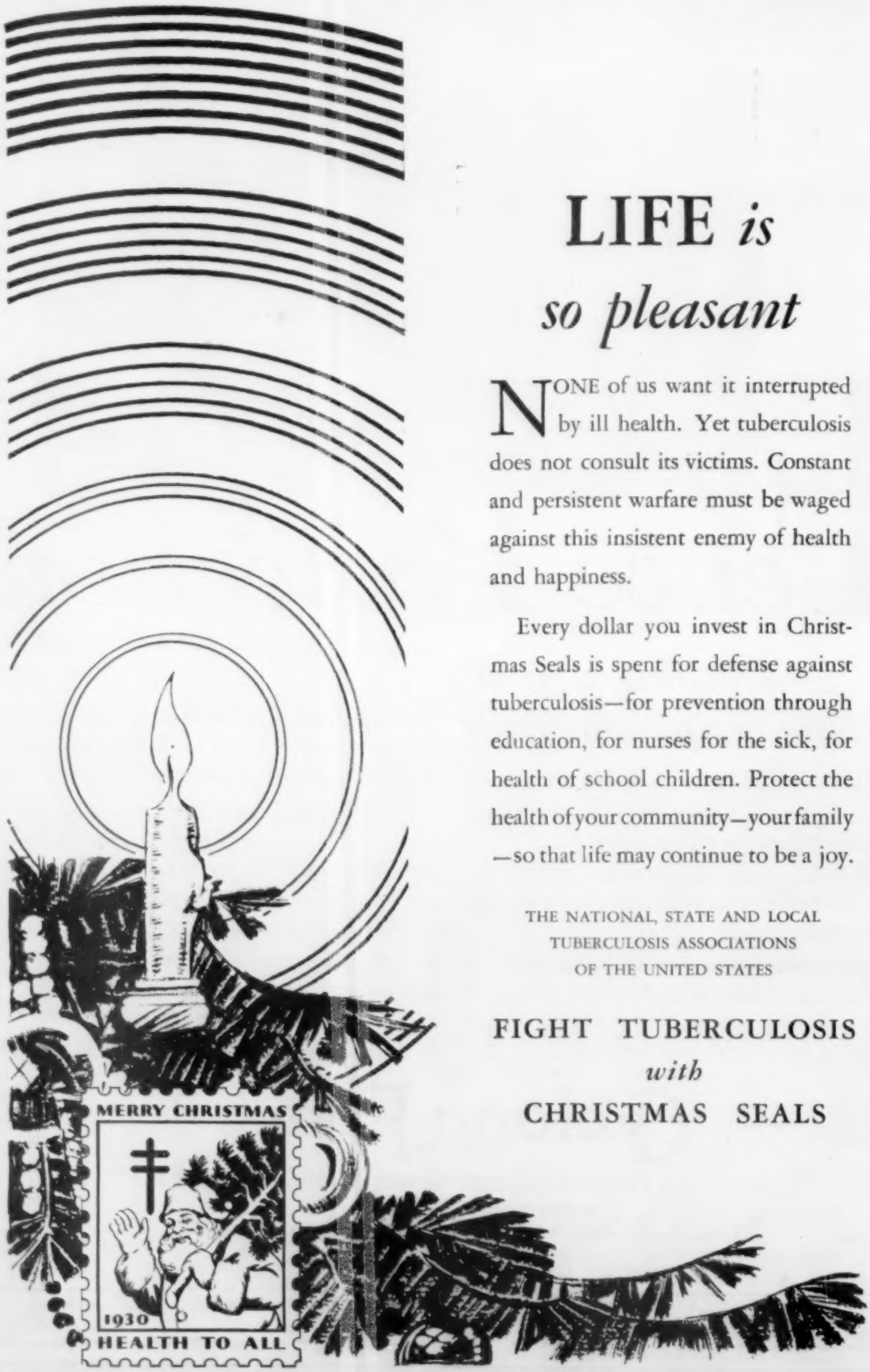



# LIFE *is* *so pleasant*

NONE of us want it interrupted by ill health. Yet tuberculosis does not consult its victims. Constant and persistent warfare must be waged against this insistent enemy of health and happiness.

Every dollar you invest in Christmas Seals is spent for defense against tuberculosis—for prevention through education, for nurses for the sick, for health of school children. Protect the health of your community—your family—so that life may continue to be a joy.

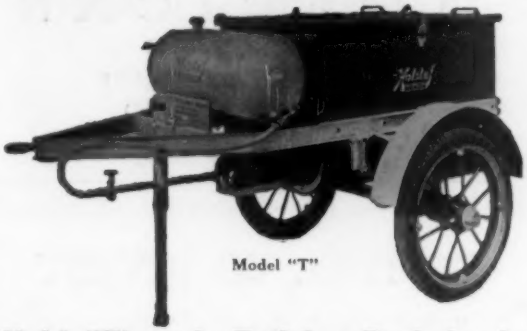
THE NATIONAL, STATE AND LOCAL
TUBERCULOSIS ASSOCIATIONS
OF THE UNITED STATES

**FIGHT TUBERCULOSIS**
*with*
**CHRISTMAS SEALS**

Hotstuf

MOHAWK HI-SPEED TRAILER

# PERFORMANCE IS THE ONLY TRUE MEASURE OF EQUIPMENT COST



Model "T"

**Model "T" can be Trailed at Truck Speeds**
The Heater with the Patented Elevated Melting Chamber and Non-Clogging Vaporizing Tip Feature. Made in sizes to suit every requirement. Compare the melting and heating capacity of the HOTSTUF Heater with that of other makes of the same rated holding capacity.

The Mohawk Hi-Speed Tool Trailer can be trailed at truck speeds. Designed for economical transportation to any location and safe keeping of tools and supplies on the job.
Made 6-, 7- and 8-foot lengths.

**MOHAWK ASPHALT HEATER CO.**
60 WEAVER STREET SCHENECTADY, N. Y.

# BAUSMAN BETTER BENCHES AND SWINGS

Add to the comfort and beauty of your parks by placing BAUSMAN BETTER BENCHES AND SWINGS at frequent intervals along the golf courses and around the tennis courts and playgrounds.

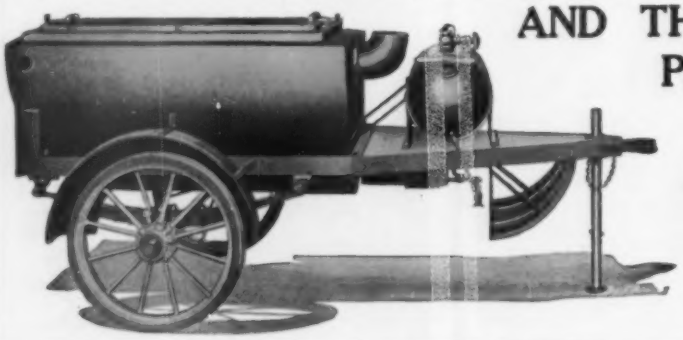
*Send for Catalog and Prices*

## MILLERSVILLE SUPPLY COMPANY

*Successors to*
**BAUSMAN MANUFACTURING CO.**
**Millersville, Pa.**

***BENCH MAKERS FOR MORE THAN A QUARTER OF A CENTURY***

## EVERYTHING REQUIRED FOR HEATING AND THE APPLICATION OF PITCH, TAR, ASPHALT



*Can be secured from*

**AMERICAN**

**STEEL WORKS**

**1211 WEST 27th STREET**

**KANSAS CITY, MO.**

*Exclusive Manufacturers of Coilless Oil Burners and Torches*

## HONHORST TAR HEATERS

*"Built for service"*

ALL STYLES
Portable and Stationary
25 to 200 gallons

See our page in Street Construction Section, Municipal Index, for the Kettle you need.

*Write for Pamphlet No. 15 on the New Oil Burning Heater*

**THE JOS. HONHORST CO.**

1016 W. 6TH ST. CINCINNATI, O.

## CAPITAL TO INVEST

Retired professional man with long experience in management of several Manufacturing and Sales organizations desires to invest capital and part time services in some business enterprise, preferably in the field of water works, sewage or sanitation.

Introduction of principals conducted by mail through—

**RICHARD KOLYER**

40 East 34th Street New York, N. Y.

## Portable and Stationary Asphalt Plants

Experience has proved that Doorley Asphalt Plants increase capacity without affecting the cost of operation. A surplus of uniformly heated material is always to be had.

These asphalt plants are made in 4 sizes, 450, 850, 1500 and 2000 sq. yds., 2-inch top soil per day. Burn coal or fuel oil, and the necessary change from one to the other can be made without trouble and delay.

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**CHARLEROI IRON WORKS**

SCOTTDALE, PA.

## BI-LATERAL FIRE HOSE

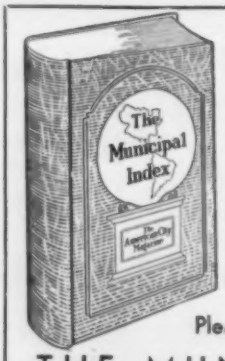
***is a modern construction***

It will flatten on the apparatus without cracking the rubber lining. It is the one hose that never bursts at fires.

When in the market, let us tell you why.

**BI-LATERAL FIRE HOSE COMPANY**

110 North Franklin St. Chicago, Ill.




MANUFACTURERS!

You will be interested to know that we have prepared a booklet about THE MUNICIPAL INDEX, which we would like to forward to you.

Please send your address to

**THE MUNICIPAL INDEX**

470 Fourth Avenue New York, N. Y.

*Distributing hot tar on the Turin-Carignano Road, Carignano, Italy*

THE

TRADE MARK Kinney REG. U.S. PAT. OFF.

JUNIOR

HEATER AND

DISTRIBUTOR

**A bituminous Distributor, especially designed for municipal and general requirements, comprising road and street construction and maintenance, calling for the application of bituminous material.**

**For this service the Kinney Junior Distributor is a modern necessity in both local and foreign fields of road and street service, calling for a small size, light-weight, efficient Distributor equipment.**

**This Distributor will heat and apply all varieties of bituminous material, hot or cold, in temperature and volume as desired. It is a separate power unit and may be mounted on any light motor truck chassis, including the new Ford models as shown in above cut of Distributor operating in Italy.**

**The standard tank capacities of the Distributor are 250 and 350 U. S. gallons,—convenient sizes for most efficient service.**

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**KINNEY MANUFACTURING COMPANY**

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New York
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Kansas City
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# "HVASS" SPREADERS

## CONQUER SLIPPERY PAVEMENTS

**SPREAD FULL WIDTH STREET OR ROAD AT ONE TIME, OR ANY PART THEREOF**

**SPREAD—SAND, ASHES OR CINDERS**

**CAN BE QUICKLY ATTACHED OR DETACHED FROM MOTOR TRUCK**

***WRITE FOR BULLETIN TO***

## CHAS. HVASS & CO., Inc.

Manufacturers and Patentees

**OFFICE: 508 EAST 19TH ST.** ***Established 1872*** **NEW YORK CITY, N. Y.**

## Is it the Curfew- or a *Fatal Fire*-?

Responsibility—YOURS—to provide your city with the best in fire alarm signals—OURS—to build for you the most powerful, efficient warning signals possible to buy.

WHAT ABOUT 1931?

FEDERAL ELECTRIC COMPANY
8701 South State Street Chicago, Illinois

*The* Unmistakable *Warning*
**Fedelcode Siren**

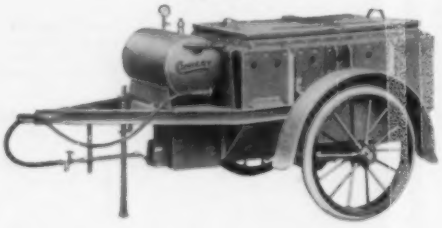
Combination Hot and Cold Mix
**ASPHALT PLANTS**
One Drum Used

**Materials dried and cooled to proper temperature for all types of Cold Mixed Tar and Asphalt Materials.**

We manufacture five sizes—100-200-300-400-600 tons per day. Mixers on all sizes up to three tons.

ASPHALT EQUIPMENT COMPANY
Scottdale, Penna.

Style "J"



We manufacture a full line of Tar and Asphalt Kettles, Oil Burning Kettles, Oil Burners, Torches, Pouring Pots, Hand Spraying Attachments, etc.

# CONNERY'S

Style "J" Oil-Burning Kettle will guard any highway with economy and efficiency. Something easy to handle and quick to heat. Equipped with standard roller bearings, springs, improved oil burner and rubber-tired wheels and heat guards if desired.

The co-operation of this organization is at your service in helping you choose the right heater for your particular requirements. Write for our little "Blue Book." It will help in the right selection.

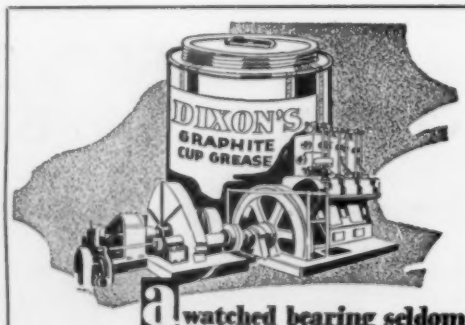
**CONNERY & CO., Inc.**
4000 N. SECOND ST., PHILADELPHIA, PA.

***Bends? - - - - Yes***
***Breaks? - - - - No!***

Use Huntsville Fiber in your street brooms — give it the hardest kind of service — it will still be the longest-wearing broom fiber you have ever seen!
Write for a copy of "The Story of Huntsville Hickory," which tells *why*.

Huntsville Fiber & Veneer Works
*Frank H. Ford, President*
Huntsville, Alabama

HUNTSVILLE HICKORY — THE *Faultless* FIBER FOR STREET SWEEPERS




**a watched bearing seldom overheats**

But who wants to keep an eye —or a hand—on a bearing to be sure it doesn't, when Dixon's Graphite Cup Grease spreads its cooling, smooth, wear-resisting lubrication to every part of the bearing.

In Dixon's Graphite Cup Grease, finely pulverized Flake Graphite—itself a lubricant—is combined with the finest quality greases. Flake Graphite, brought to the bearing surfaces, takes the load and wear — prevents overheating and scoring. There's economy in such lubrication.

Dixon's Graphite Cup Grease is made in six degrees of hardness—No. 3 is recommended for general use

Give Dixon's Graphite Cup Grease a trial on any bearing —you won't have to nurse it to keep it cool.

*Write for Circular No. 107-R*

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| Flake Graphite | Belt Dressing |
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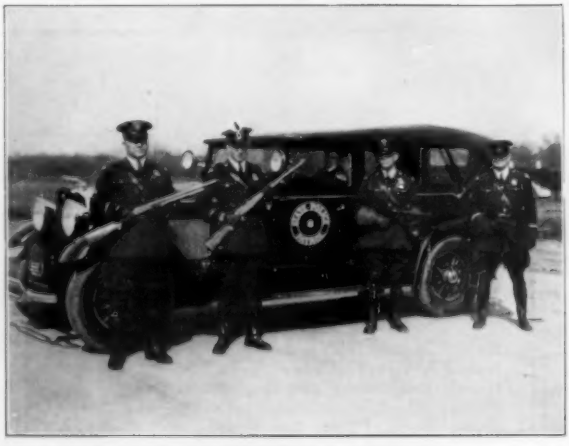
Established 1827
Jersey City New Jersey

DIXON'S GRAPHITE CUP GREASE

# De Forest
REG. U. S. PAT. OFF.

# POLICE RADIO

5000-WATT
POLICE TRANSMITTER
EAST LANSING, MICHIGAN



PATROL CAR
MICHIGAN STATE POLICE

THE LARGEST POLICE RADIO INSTALLATION IN THE WORLD

YES, IT IS A
DE FOREST

*INFORMATION ON REQUEST*

DE FOREST RADIO COMPANY
PASSAIC, NEW JERSEY

# 1 77/100¢ a mile, for a MILLION *and a* HALF MILES

THAT'S all it cost Massachusetts to maintain a fleet of Indians . . . 1¾c a mile for gas, oil, tires and repairs.

That's why New York City's huge Motorcycle Squad is exclusively Indian equipped.

That's why many other cities, and states, and hundreds of municipalities have turned to Indians.

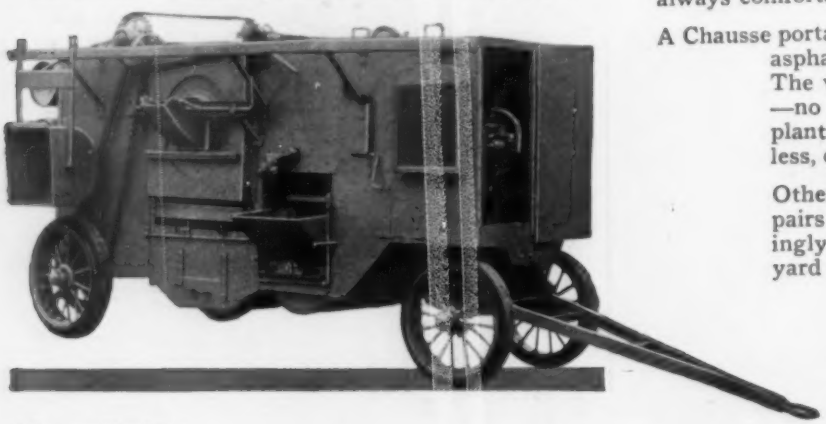
Get the facts . . . Let us prove Indians' ability to cope with every police requirement (including budgets that can't be budged!) Get the facts—ask any Indian rider what he thinks of Indian power, speed, stamina—its ease of handling—that exclusive advantage of the left-hand throttle that is standard equipment, leaving the right hand free for accurate shooting.

# Indian
## MOTOCYCLES

## INDIAN MOTOCYCLE CO.
DEPT. 8C12
SPRINGFIELD, MASSACHUSETTS

# Asheville Makes Smooth Street Repairs with a Chausse Portable Asphalt Plant

The most modern and economical street repair machine on the market, portable and stationary types.



Patched streets usually mean bumps and unpleasant riding, but streets of Asheville, N. C., are always comfortable and smooth.

A Chausse portable asphalt plant is used to repair asphalt, resurface concrete and brick. The work is done whenever necessary—no need to wait for a contractor's plant to start up. The cost is much less, done by city forces.

Other cities do all of their street repairs with Chausse plants at surprisingly low expense, less than $1 per yard of 2″ mix, laid.

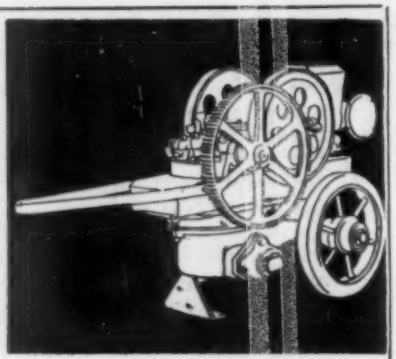
It will pay every progressive city to investigate. Initial investment is moderate and advantages great in owning your own repair equipment.

**Chausse Products**
Asphalt Plants
Tar Kettles
Kerosene Torches
Sand Driers
Mixer Heaters

**Chausse Oil Burner Company**
**Elkhart, Indiana**

*Send for Catalog and Letters from Users*

Rex
*3″ Diaphragm*
$170.00
LIST AT MILWAUKEE with steel wheels



A brand new 3 in. diaphragm Pump on a new idea. 300 pounds lighter. Easier to handle and move. Diaphragm changed easily in 9 minutes. Merely loosen three nuts. No finger smashing. 2 h.p. Stover engine—completely enclosed—self-oiling — high tension mag 'n everything.

REX PUMPS

*Get the story on the Water Boy's value, and details on all Rex Pumps and their jobs in the REX PUMP BOOK. Use this coupon.*

CHAIN BELT COMPANY
166-7 West Bruce Street
MILWAUKEE WISCONSIN

*Name*.....
*Address*.....
*City*.....
*State*.....

***Contractors and Road Officials Write for Catalog No. 280***

***It tells all about***

**Baker Maney Self-loading Scrapers**
**Baker One-man Rotary Scrapers**
**Baker Bulldozers and Backfillers**
**Baker Road Maintainers and Planers**
**Baker Snow Plows for Trucks and Tractors**

BAKER
TRACTOR EQUIPMENT
EARTH MOVING · ROAD MAINTENANCE · SNOW REMOVAL

**The Baker Manufacturing Co.**
**503 Stanford Ave., Springfield, Ill.**

# NO "EXCESS BAGGAGE"

## ..on the MASTER SERIES apparatus!

**There's no excess weight in the new Master Series Apparatus. For quality of the materials used breeds lightness of the whole.**

**Only the highest grades of steels, aluminum and bronze go into this Apparatus. We *could* use cheaper materials . . . but parts made from these materials would have to be larger—and heavier—to stand the strain. Excessive weight, added by these heavier parts, would reduce speed, and make handling difficult and perhaps dangerous in traffic, on bad roads, and on steep grades.**

**Compare the specifications of the American-La France Master Series Apparatus with any other apparatus built today. Compare the materials. You will understand why the Master Series is rapidly putting older apparatus into the second line of defense.**

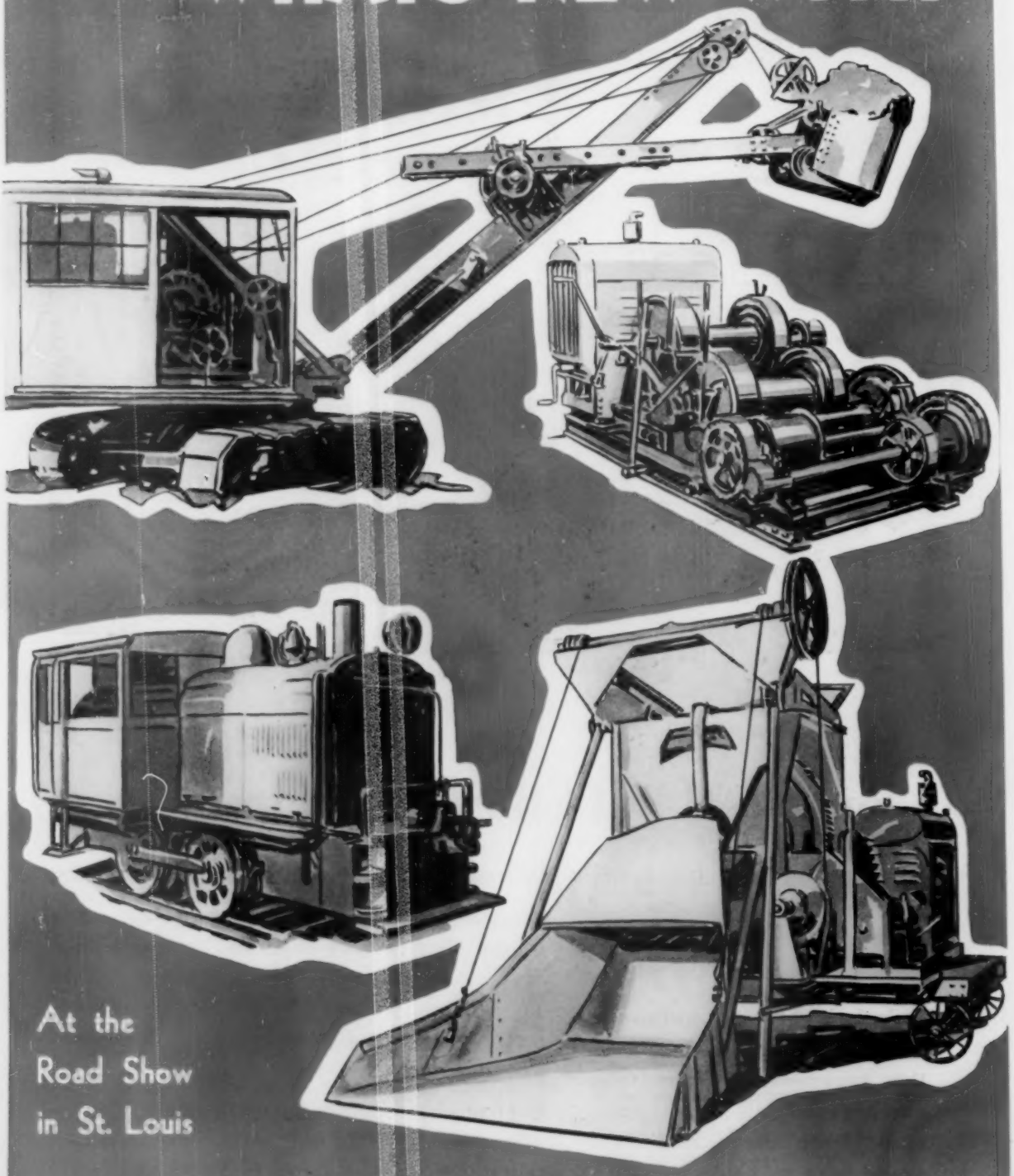
**For complete information on the Master Series, write American-La France and Foamite Corporation, Dept. C35 Elmira, N. Y. *Offices in all principal cities.***

LA FRANCE AND FOAMITE PROTECTION

*AN ENGINEERING SERVICE*

AGAINST FIRE

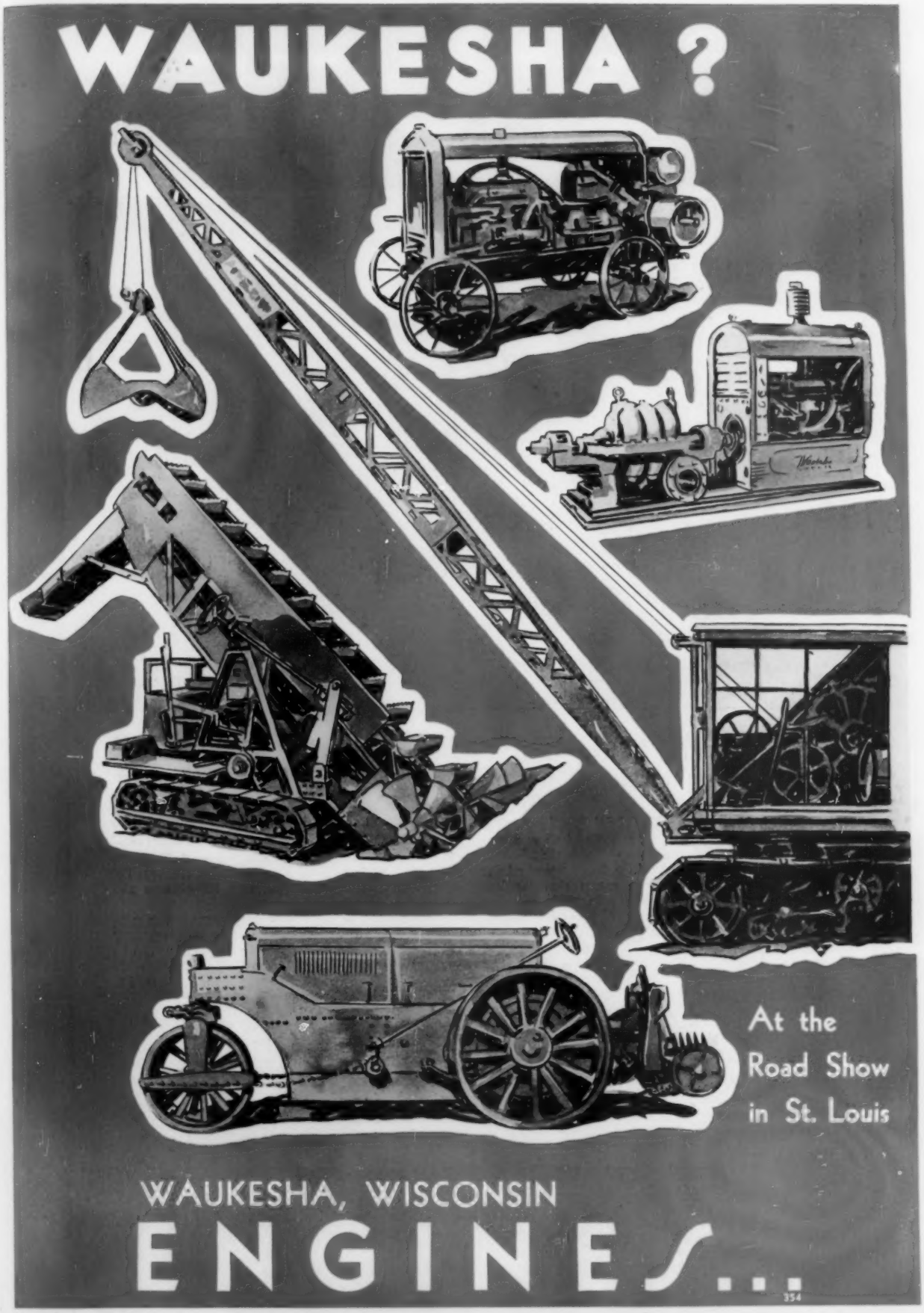
# WHAT'S NEW WITH



At the
Road Show
in St. Louis

WAUKESHA MOTOR COMPANY

WAUKESHA




During December we hope you will remember to mention THE AMERICAN CITY.

# LEADITE

Trade Mark Registered U.S. Pat. Office

## Leadite is well known and extensively used by Water Works Men throughout the country

When we say that LEADITE has been used for jointing thousands of miles of bell and spigot water mains—we mean "just that,"—and when we say that LEADITE has been used for various sizes of pipe,—we mean that "it has been used for making joints in sizes ranging from 4-in. to 84-in. diameter, inclusive,"—further, when we state that LEADITE is used for various pressures,—we mean the "pressures commonly encountered in bell and spigot water pipe line construction,"—and when we refer to LEADITE being used on pipe laid under all conditions,—we mean the "conditions usually encountered in water pipe line construction."

LEADITE is Light in Weight and Easy to Handle,—and requires No Caulking. LEADITE Saves in cost of material, and Eliminates the drudgery of caulking.

SOMEONE WISELY SAID YEARS AGO: "THE TRUE WORTH OF A PRODUCT CAN BEST BE JUDGED BY THE 'QUALITY' OF ITS USERS, OVER A PERIOD OF YEARS." In this connection, LEADITE speaks for itself.

*The Pioneer self-caulking material for c. i. pipe.*
*Tested and used for over 30 years.*
*Saves at least 75%.*

THE LEADITE COMPANY
Land Title Building Philadelphia, Pa.

**No Caulking**

# Perth Amboy, Too, Plans for Economy

## IN REFUSE DISPOSAL

### *by Installing a*

# NYE

## ODORLESS INCINERATOR

This plant in Perth Amboy, N. J., represents the **last word** in operating efficiency:—Refuse is dumped direct from trucks on the top floor into furnaces on the floor below, and from here the ashes are dumped direct from the furnaces through ash tunnels to trucks in the basement. **This means minimum operating cost.**

Another important point is, if your city is now paying for long hauls to a distant dump, you can soon pay the price of the incinerator out of the money saved by **short hauls.**

And another: Operation requires only **unskilled labor.**

Perth Amboy is one of more than 150 cities that are now effecting these refuse disposal economies by using NYE INCINERATORS.

Give this matter consideration for **your** city. Read our booklet, **"The Nye Leads."** A copy will be sent on request.

**NYE ODORLESS INCINERATOR CORP.**

**Executive Offices: ALBANY, GEORGIA**

CANADIAN NYE INCINERATOR CORPORATION, Limited, MONTREAL, QUEBEC

**SALES OFFICES**

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50 East 42nd St.
**Los Angeles, Calif.**
**Chicago, Ill.**
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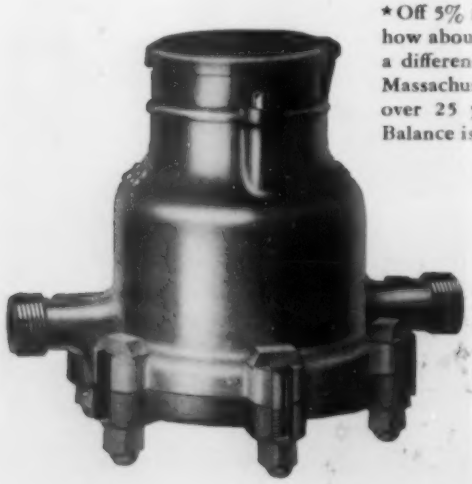
**San Antonio, Texas**
**Memphis, Tenn.**

When you write for that catalog, kindly mention THE AMERICAN CITY

# You don't have to be a BUGLER to test a HERSEY Meter

SO perfectly balanced*—so free from friction—is the disc piston of a Hersey Water Meter that the test of inspection given this sub-assembly is a puff of the breath!—not a hard lung-bursting blow, just a mild puff. No mechanical guiding devices that introduce wear are necessary with such balance. If a puff of air will make the disc nutate violently, think of the effect of water. The Hersey Disc Meter will accurately register flows smaller than 1/32 of an inch. A fact that means greater revenue to your department. A fact that will discourage waste of water in your community. A fact that you should take into consideration when you again invest in water meters. Write us for further details today.

**See what is back of HERSEY Performance**



*Off 5% is not bad registration for a *single* meter, but how about 13,000? This error in accuracy would make a difference of $9,334.06 in the revenue of a certain Massachusetts city. Many Hersey Meters in service for over 25 years show an accuracy off less than 2%! Balance is the secret—investigate.

**HERSEY WATER METERS**

HERSEY MANUFACTURING COMPANY—*Main Office and Works:* Corner E and 2nd Streets, South Boston, Mass.

*Branch Offices:* NEW YORK CITY, 290 Broadway; PORTLAND, ORE., 475 Hoyt Street PHILADELPHIA, PA., 314 Commercial Trust Bldg.; ATLANTA, GA., 510 Haas-Howell Bldg. DALLAS, TEXAS, 402 Praetorian Building.; CHICAGO, ILLINOIS, 10 South LaSalle Street SAN FRANCISCO, CAL., 690 Market Street; LOS ANGELES, CAL., 450 East Third Street

# ELRECO Meets Your Needs With A Type For Every Purpose

If every building in your community were alike as two peas in a pod — if every citizen were alike in color, cut and design — if every motor car on your streets presented the trunk-entwined-in-tail appearance of circus elephants on parade — what a ridiculous situation would evolve. Economy, efficiency, individuality and beauty would be destroyed. This situation when applied to ornamental street lighting is analogous.

So basing ELRECO Pole Design on the fundamentals of longer life, freedom from repairs and practical utility, our designers have built outstanding beauty into every ELRECO Standard and Pole—individuality to register your community as progressively and independently outstanding — beauty without bizarre effect or ostentation to harmonize with the general surroundings.

Communities everywhere are evidencing their approval of ELRECO's policy of "fitting the need with a type for every purpose" — prominent utilities have long since expressed their approbation through substantial orders for the practical and economical type of pole which ELRECO pioneered— The Combination Railway and Lighting Standard.

Whatever your needs in ornamental street lighting, whether Fluted Steel or Tubular, let ELRECO figure to your advantage. Apply an ELRECO Standard to your requirements rather than try to fit your requirements to the pole.

The coupon is an easy and convenient way to get the facts about ELRECO.

THE ELECTRIC RAILWAY EQUIPMENT COMPANY
2901 Cormany Avenue, Cincinnati, Ohio

Gentlemen:
You may send complete information on meeting our lighting requirements with ELRECO Standards. We are interested in ☐ Fluted Steel Standards ☐ Tubular Steel Standards ☐ Combination Railway and Lighting Standards ☐ Flood Lighting Standards.

Name of Firm or Community _____

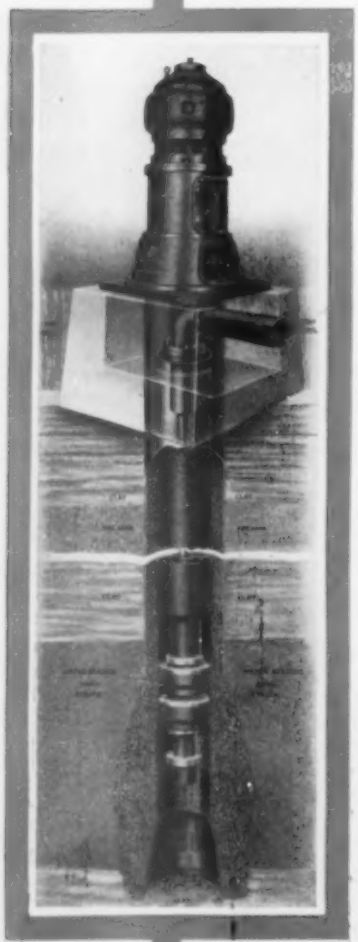
Name of Individual _____

Position _____

City _____ State _____

A.C. 12-30

# Specialized engineering *and* Service!



In order to best serve present and prospective users of Layne Water Supply Systems and Layne Pumps, associate companies have been formed and located at most advantageous points. The personnel of these companies is made up of men long schooled within the parent organization.

These men have the necessary technical and practical training. Each group has made an intensive study of its own particular territory so the customer's problems are most economically solved and analyzed.

Each man realizes success depends upon service rendered and is eager and ready to deliver the highest type of service.

*Write for name of associate company serving your state*

## LAYNE & BOWLER, Inc.

Memphis Tennessee

| | | |
|---|---|---|
| New York | Chicago (Forest Park) | Columbus |
| Milwaukee | Kansas City | Memphis |
| Norfolk | South Bend | Lake Charles |
| Houston | Toronto, Ontario | Moosejaw, Sask. |
| Paris, France | Torreon, Mexico | Stuttgart, Ark. |
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# LAYNE

## PUMPS AND WATER WELLS

COMPLETE
ECONOMICAL
ODORLESS

# INCINERATION

*assured by Morse Boulger design*

**WHEN garbage is burned, if nuisance is to be avoided, the garbage and the odorous gases which are distilled off as moisture must be heated and then completely burned.**

**To burn all these gases under normal conditions, they must be thoroughly mixed with at least 20 times their own weight of air, while at a temperature of 1250° F. or above. As the gases in an incinerator are moving rapidly toward the chimney, a long path in the high temperature zone must be provided.**

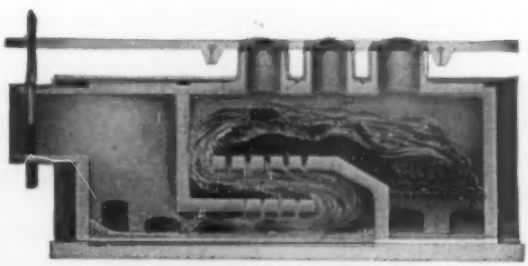
**The design of the Morse Boulger Destructor provides for mixing and burning in the hottest part of the destructor, with an ample supply of air under all conditions.**

**This action is one of the many interesting things explained in our booklet offered to municipal officials. Send for it.**

## SIMPLE

Simplicity of design is a feature of the Morse Boulger Destructor. Except for charging and access doors, there are no moving parts. The iron grates are stationary, as experience has proved that dumping or shaking grates easily become jammed and require considerable maintenance and frequent replacement.

Morse Boulger Destructors do not require high-priced labor in their operation. They can be satisfactorily operated by any laborer of average intelligence. This tends to economy in operation.



HEAVY-DUTY INCINERATION
**MORSE BOULGER**
**DESTRUCTORS**

MORSE BOULGER DESTRUCTOR CO., INC.
205-C East 42nd Street New York City, N. Y.

# Badger Greetings

*as wide as its service*

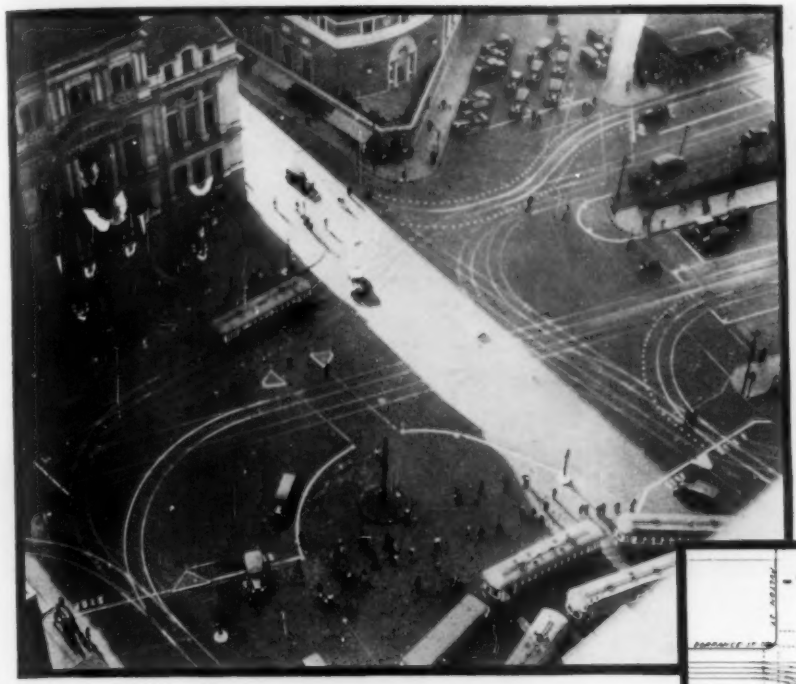
Again . . . at this Season . . . we turn from our course of business routine and lift our thoughts to those of the Yuletide. For Man, regardless of tongue, is embued with the Christmas Spirit . . . a Spirit of Well-Wishing and Happiness . . . To all of you the world over, our sincere wishes go out for the happiest of Christmases and a prosperous New Year.

BADGER METER MANUFACTURING CO., *Milwaukee, Wis.*

*Branch Offices:* NEW YORK CITY CINCINNATI, OHIO CHICAGO, ILL. KANSAS CITY, MO. WACO, TEXAS
SAVANNAH, GA. SEATTLE, WASH. LOS ANGELES, CALIF. PHILADELPHIA, PA.

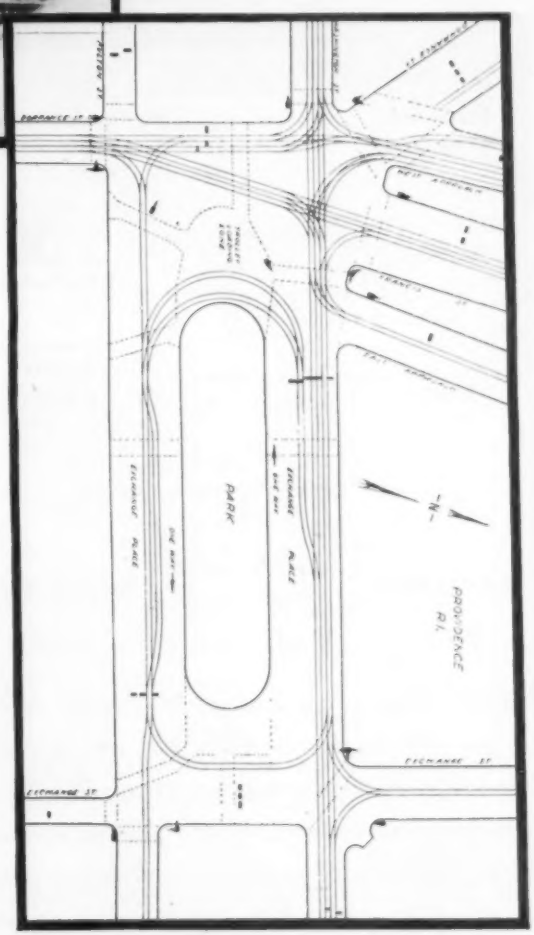
## BADGER *Water* METERS

When you write for that catalog, kindly mention THE AMERICAN CITY.



Exchange Place presents the greatest difficulties from the standpoint of traffic control of any point in Rhode Island. The streets are irregular and the traffic movement complex. All of the principal trolley lines of Providence pass through Exchange Place.

This complicated intersection has been handled by ELECTRO-MATIC Control for nearly a year and since its installation, traffic moves with higher efficiency and with a lower accident rate than when under officer control.




# *In Providence—*

## VEHICLE-ACTUATED CONTROL

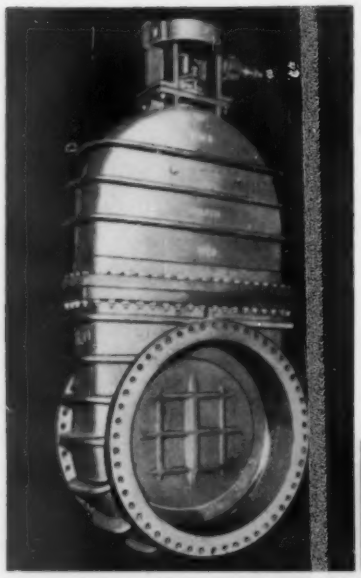
**Exchange Place is the focal point for traffic in downtown Providence. The extremely heavy volume of both vehicle and pedestrian traffic made it formerly a difficult control problem for seven highly trained traffic officers. Electro-Matic full vehicle-actuated control was installed here a year ago. Under this control vehicular traffic is organized to separate the major interfering flows and to permit the non-interfering flows to move independently. Pedestrian traffic is given a separate protection interval at the points of greatest traffic density, and this period is progressively assigned to successive corners to provide a continuous traffic movement around the square. Peak traffic volume of 5,000 vehicles, street cars and 18,000 pedestrians per hour is now being efficiently and safely dispatched entirely by Electro-Matic Control.**

## ELECTRO-MATIC
## VEHICLE-ACTUATED
## TRAFFIC DISPATCHING SYSTEMS

# AUTOMATIC SIGNAL CORPORATION

*Executive Offices*

BOSTON NEW HAVEN, CONN. CHICAGO



Standard Gray Iron

# CAST FROM THE SAME PATTERN . . . BUT VASTLY DIFFERENT!

## COMPARE THE METAL IN THESE TWO VALVES

| Standard Gray Iron | | Meehanite Processed Iron |
|---|---|---|
| 25,000 | Tensile Strength Lbs. per Sq. Inch | Not less than 33,000 50,000 where required |
| 2,500 | Transverse Strength Lbs. | Not less than 3,300 5,000 where required |
| 1.0 | Charpy Impact, Ft. Lbs. | 6.7 |
| 12,000,000 | Modulus of Elasticity | 28,000,000 |
| 7.20 | Specific Gravity | 7.49 |

Meehanite Processed Iron

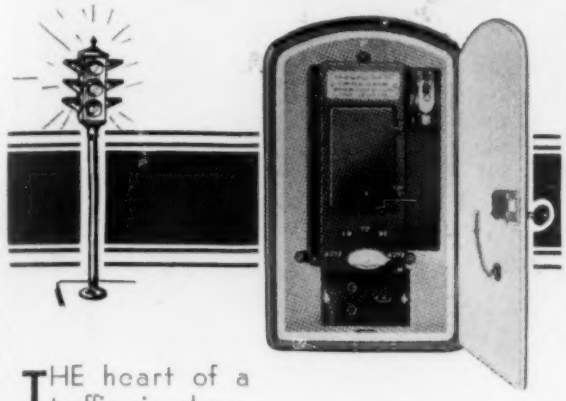
YOU know what your working pressure will be at any valve location, but can you predetermine what pressure that valve will have to take due to surge in the line? Can you evaluate the impact stress set up in the valve body by water hammer? Can you tell what thermal stresses the valve metal will have to withstand or what bending stresses unstable foundations might bring into action?

Now compare again the physical properties of the metal in the two valves above and remember that Meehanite, in addition to its superior strength, has a higher resistance to corrosion, is free from spongy regions and possesses a much higher degree of pressure tightness.

Isn't the added protection afforded by Meehanite worthy of careful consideration? Send for complete data on Meehanite Valves before closing your next specification.

MICHIGAN VALVE & FOUNDRY CO. DETROIT

# CO-ORDIPLEX CONTROL



THE heart of a traffic signal system is in the controller, whether the installation is a single, simple intersection or extensive and complicated.

Traffic conditions change rapidly. The flow of traffic does not always remain uniform. A detour, a parade, the opening of a new business block, a new theatre, or even a new residential section will cause either a slight or complete change in the traffic flow on given streets. If you have purchased wisely, your traffic signal controllers will not have to be discarded or re-located when this occurs—select **Eagle Co-ordiplex Traffic Signal Controllers.**

Extremely flexible, quiet and carefree service is provided by the **Eagle Co-ordiplex Controllers.** With them, you can easily make even radical changes in timing to accommodate the varying traffic conditions that are frequently encountered.

Individual outlying intersections can be efficiently handled by the **Eagle Co-ordiplex Controller,** and at any time in the future it can be connected to a flexible, progressive, co-ordinated system, without discarding any equipment.

Descriptive literature awaits your request.

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No other color means DANGER

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YOU need Dietz Red Lanterns—lanterns that can be left on road construction at night with confidence that they will be found burning in the morning—whatever the weather may be.

The ultimate difference in cost between a scientifically correct Dietz Lantern and something less reliable might be thousands of dollars in case of accident.

For economy and utmost safeguard use Dietz Red Lanterns for night warning duty.

## R. E. DIETZ COMPANY

NEW YORK

*Largest Makers of Lanterns in the World*

FOUNDED 1840

DIETZ LANTERNS

*Socony Cold Patch constructed by State Forces at Glenmont Bridge, Albany County, N. Y.*

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## *(Socony Brand)*

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*for surface treatment*

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*for penetration work*

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*for the mixing method*

Standard Asphalt Joint Fillers
*for brick or block pavements*

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*for repairing all types of bituminous road surfaces*

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ASPHALTS AND ROAD OILS

*Specifications and all other particulars furnished on request*

STANDARD OIL COMPANY OF NEW YORK

# Now ASSURED REVENUE FROM YOUR GASOLINE TAX

## *Wherever Visable Pumps are Used*

### 1000% Increase

"One filling station operating two pumps, prior to installing meter, collected an average of $4.50 per month on a 1c per gallon gas tax. First two months after the Neptune (Trident) meters were installed we collected $48.43. In another instance we collected an average of $2.00 per month from a filling station and the first month after the meter was installed, we collected $27.85 under the same ordinance.

"Those are exceptions to the rule; but we have realized a big increase in our gasoline tax on a big percentage of the service stations within the City of Dothan and the Police Jurisdiction thereof."

I. P. SCARBOROUGH,
*City Clerk, Dothan, Alabama.*

### Less Tax—More Revenue

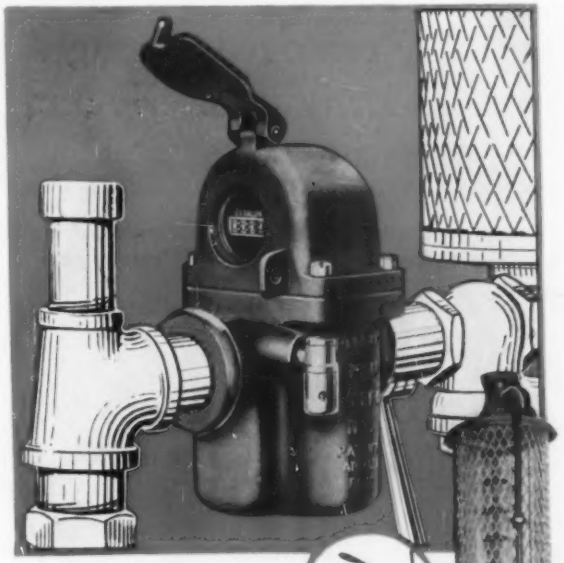
"Recently reduced gasoline tax from two cents to one cent per gallon and on last month of two-cent tax one company reported $30.00 sales. When meters were installed next month same company reported $60.00 at one-cent per gallon. We feel that any town installing these meters would collect enough additional revenue within a short while to pay the cost and expense of installing. We use your water meters and they are giving entire satisfaction and likewise the 35 gasoline meters are giving satisfaction."

B. W. SIMMONS,
*Clerk, City of Opp, Alabama.*

### $114 in 20 days

"Recently installed Neptune (Trident) gasoline meters on all filling station pumps in the City of Greenville and police jurisdiction. Since installing, have increased revenue considerably. First 20 days of service showed an increase of $114.00. Have forty-seven meters in use. Strongly recommend the use of gasoline meters to any city that has a gasoline tax."

J. L. GRANT,
*City Clerk, Greenville, Alabama.*



**Neptune (Trident) Gasoline Flow Meters are attached quickly to any visible type pump, old or new. Adjustable to any grade gasoline. Total gallon measured, recorded. Total reading locked in meter. Simple, sturdy, accurate.**

**Produced by NEPTUNE, backed by 38 years' experience in building over 5¼ million liquid meters.**

THE TRIDENT SYMBOL OF SUSTAINED ACCURACY

*Write for circular*

**NEPTUNE METER COMPANY**

*Makers of Over 5,250,000 Precision Meters since 1892*

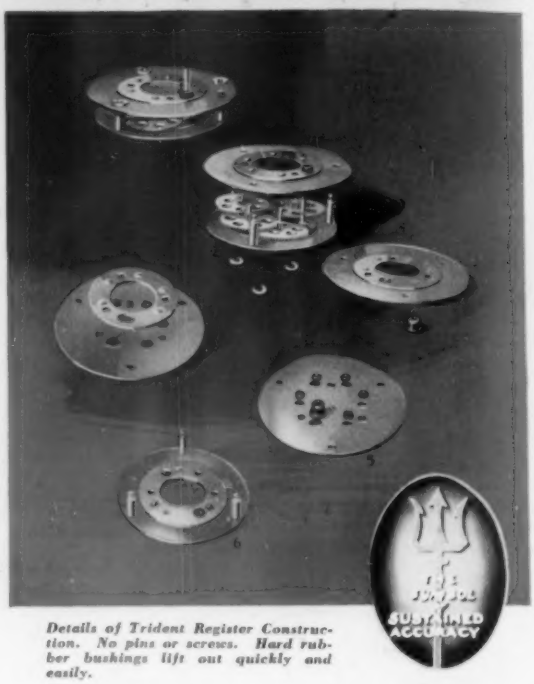
**50 East 42nd Street** **New York City**

*Pioneers in Meter Progress — Yesterday TODAY Tomorrow*

# TRIDENT Neptune GASOLINE FLOW METERS

# FIRST HEAT PROOF REMOVABLE BUSHINGS

The use of renewable, heat proof, hard-rubber bushings on all spindles of the Gear Train and Register of Trident Meters guards against corrosion and insures sensitivity and sustained accuracy. These bushings are quickly removed through a simple form of interlocking construction.



*Details of Trident Register Construction. No pins or screws. Hard rubber bushings lift out quickly and easily.*

*"Pioneers in Meter Progress*
*Yesterday TODAY Tomorrow"*

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# TRIDENT & LAMBERT METERS

# Their words have wings as swift as light

*An Advertisement of the American Telephone and Telegraph Company*

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Whatever happens, wherever it happens and however it may affect you, you may know it immediately over the wires or the channels of the air that carry men's words with the speed of light. Business and social life are free from the restrictions of time and distance—for practically any one, anywhere, may at any time speak with any one, anywhere else.

The widespread and co-ordinated interests of the nation depend upon an intercourse that less than sixty years ago was not possible in a single community. This is the task of the telephone wires and cables of the Bell Telephone System—to make a single community of our vast, busy continent wherein a man in Los Angeles may talk with another in Baltimore or a friend in Europe as readily as with his neighbor.

It is the work of the Bell Telephone System to enable friends, families and business associates to speak clearly and immediately with one another, wherever they may be. Its service is as helpful and accessible on a village street as in the largest cities.

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*Concrete for permanence*

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CHICAGO

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## *Now . . . any city, any property owner can afford durable, paved streets*

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### *Make this practical test*

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Why not remember to mention THE AMERICAN CITY?

# Many Miles of CHICAGO BOULEVARDS Surfaced with STANOLIND CUT BACK ASPHALT

Showing first application of Stanolind Cut Back Asphalt on roadway to be surfaced.

Mixing mineral aggregate and Cut Back Asphalt on the roadway.

Rolling after completely mixing and surfacing on the roadway.

Completed Roadway.

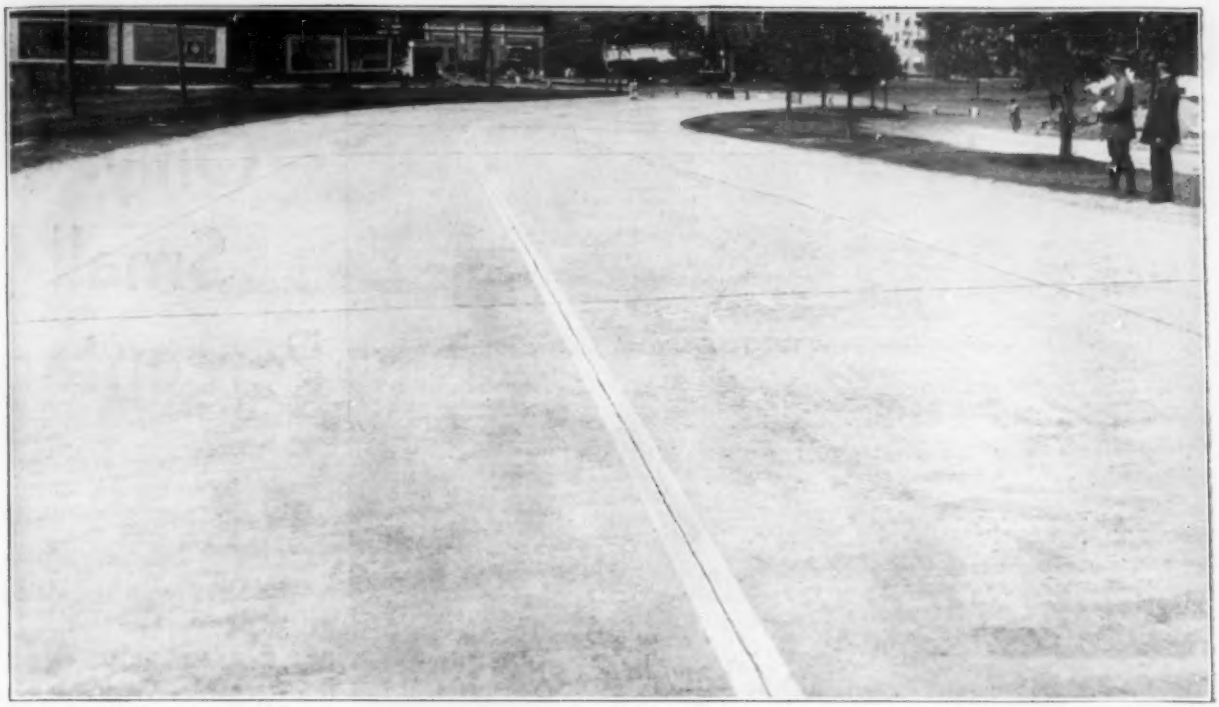
THE BOULEVARDS in the Park Systems of Chicago are the heaviest traveled in the world, carrying passenger cars and double-decked buses.

The section of pavement shown here is being surfaced with Stanolind Cut Back Asphalt. This method of maintaining paving and building up the thickness is being used to a greater extent each year. It is not an experiment, but a practical solution of maintenance problems, and has been giving satisfactory service for over five years.

The services of the Standard Oil Company engineers are available to those who wish further details on this type of construction.

STANDARD OIL CO. (Indiana)
910 S. Michigan Avenue Chicago, Illinois

# ASPHALTS FOR EVERY PURPOSE



Commonwealth Avenue, Boston, Massachusetts

# Boston, too, Builds for the Future

This Boston boulevard, paved in 1923, was protected against expansion and contraction by the use of CAREY Elastite Expansion Joint.

When the paving investment dictates the BEST methods and materials, you will find CAREY Elastite Expansion Joint used. Proved by successful installations for nearly twenty years . . . stocked in every distributing center . . . it solves the problem of the engineer, who requires definite results, and of the contractor, who must have dependable service.

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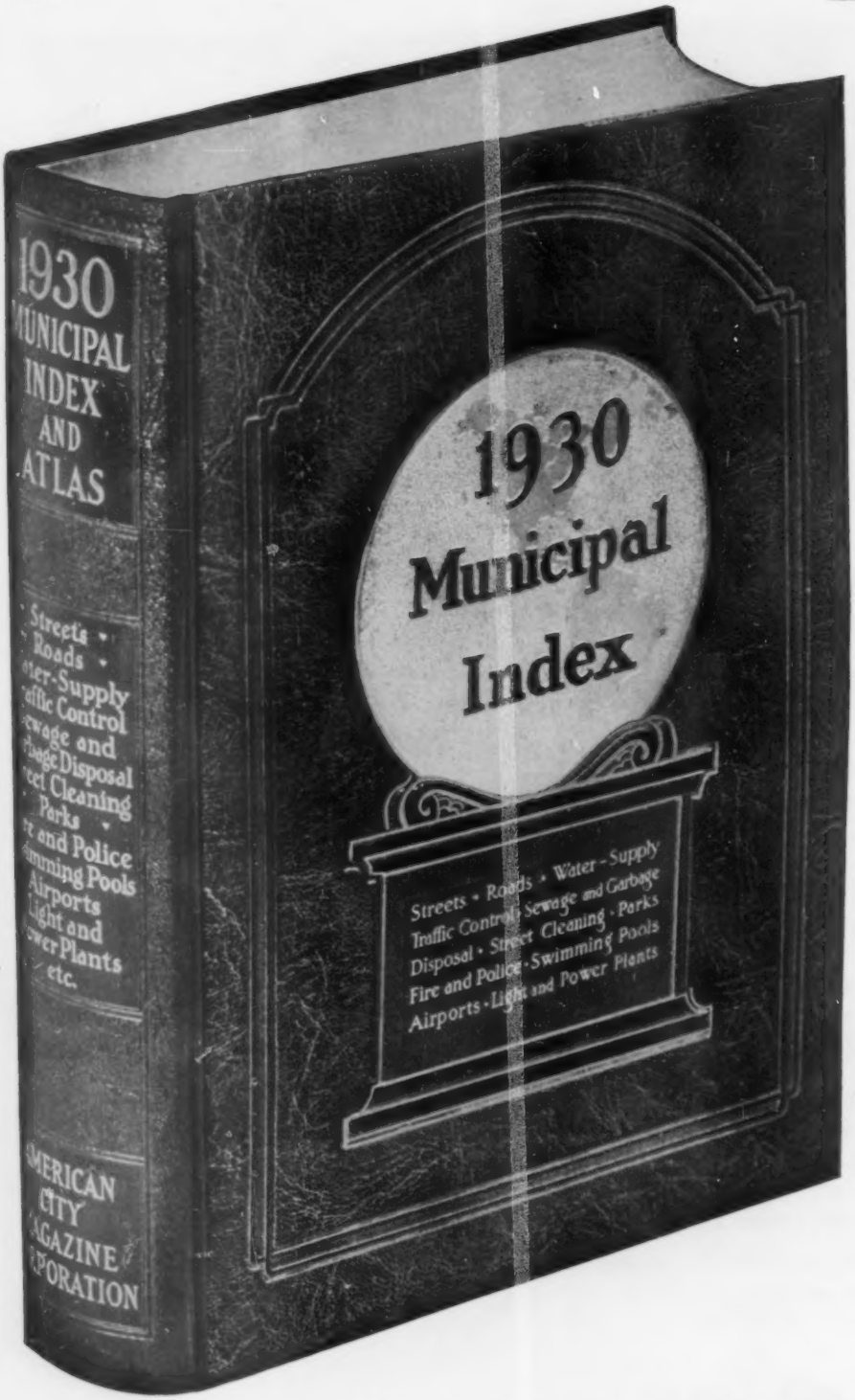
EXPANSION JOINT

THE PHILIP CAREY COMPANY — *Lockland,* Cincinnati, Ohio

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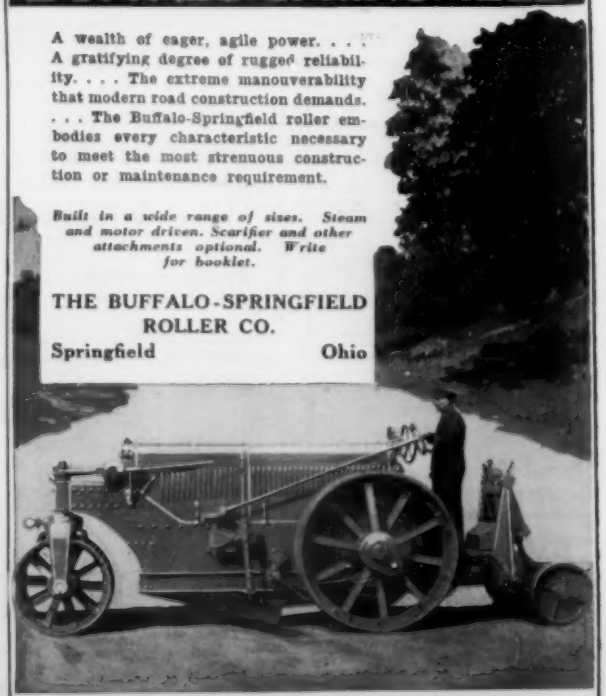

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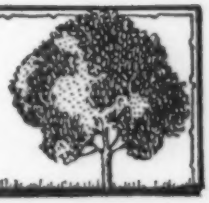

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State of New York, County of New York, ss.:

Before me, Notary Public in and for the State and County aforesaid, personally appeared EDGAR J. BUTTENHEIM, who having been duly sworn according to law, deposes and says that he is the President and Business Manager of the American City Magazine Corporation Publishers of THE AMERICAN CITY and that the following is to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

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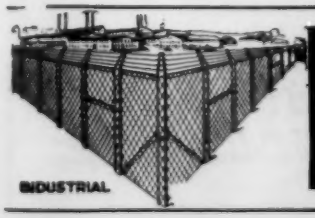

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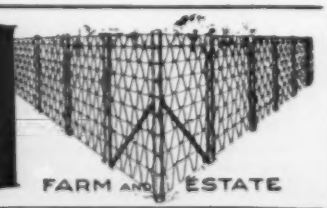

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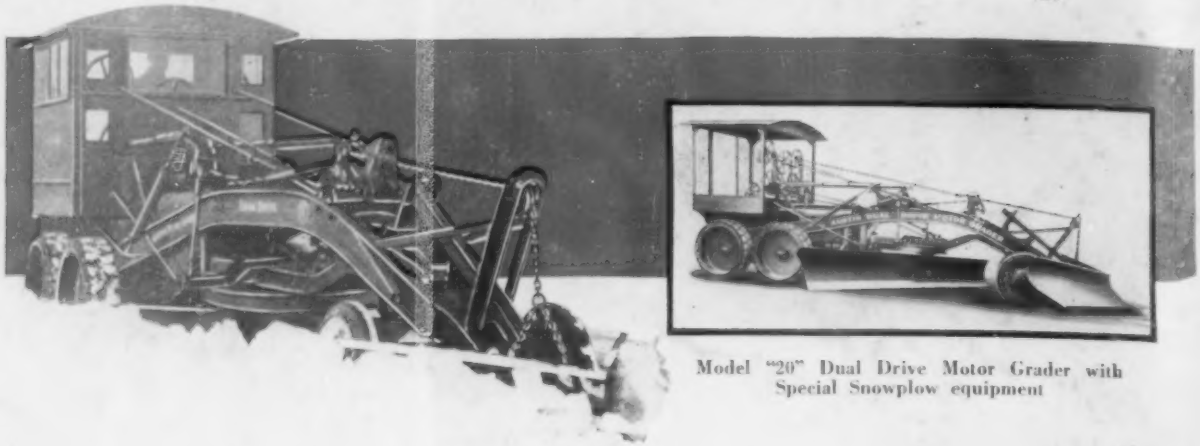

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Above: Western "30" Straight Blade Snowplow
Below: Western "V"-shaped Snowplow

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